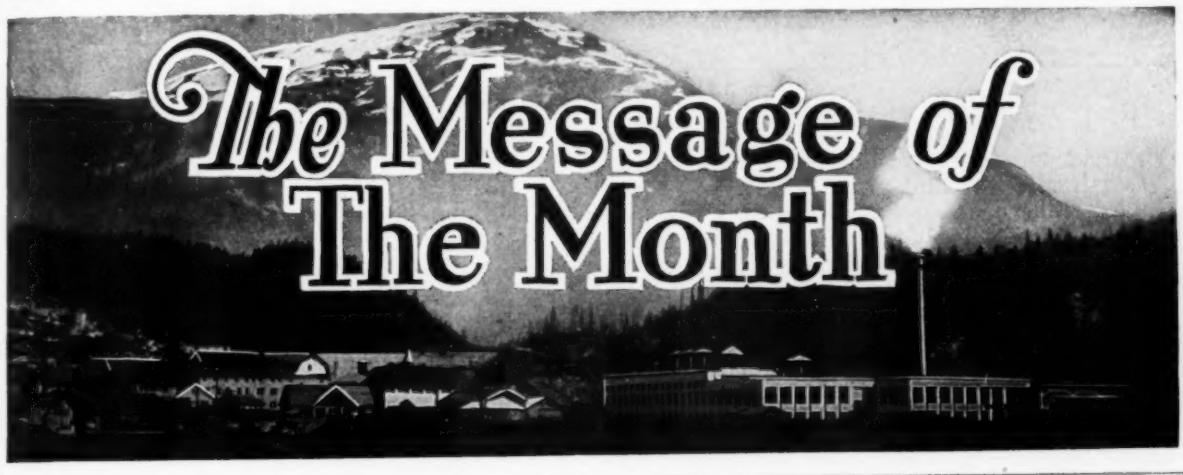


The Paper Market

THE January reports show no improvement in the paper industry.

The first month of the new year was a distinct disappointment to the entire trade. The industry has shown it has no power within itself to correct its **overproduction** ills.

The best available statistics reveal that the consumptive demand is running about 63 per cent of potential capacity.

The executives of the industry, particularly those in control of dominant tonnage, fail to recognize that the curtailment of **overproduction** has actually taken place. To be sure, it is an involuntary curtailment brought about not because the mill men have voluntarily adjusted their production to the consumptive demand, but because it is impossible for them to crowd on to the unwilling buyers their various grades of paper in excess of the actual demand for it.

Under these conditions, were the mill men to realize the strength of their situation and the paucity of stock in the four consumptive reservoirs and cease endeavoring to crowd excessive supplies on to the market, being content with a 65 per cent running schedule, there would be no difficulty whatever in taking the next remedial step which would be an immediate substantial advance in price.

However, there are no indications at the present writing of any advance in price. Prices at the close of January in most every division of the industry were lower than they were at the beginning of the month.

During January, there was a well-defined rumor throughout the trade that the price of newsprint was scheduled for lower levels. However, recent dispatches from Canada would seem to contradict this, because a merger of all the newsprint mills of the lakes and eastern provinces is about completed even including the Canadian International Paper Company mills. The idea was to merge all the newsprint mills of that portion of Canada under one control, shut down the excess tonnage and stabilize the market with the hope of subsequent advances in price.

The price situation in the kraft division of the industry is deplorably weak and will continue so long as the dominant controllers of tonnage continue the devastating price war. It seems that some of the larger mills in that division of the industry are obsessed with the idea that the constant lowering of prices will eliminate all competition.

This procedure will never succeed—it never has succeeded. Selling at below cost cannot continue indefinitely, of course, by any mill—big or little. The men who are in charge of mill properties, selling paper at below cost to-day, may be forced out of corporate existence, but the mills, their water powers, their equipments, their woodlands still remain, and the good will which they have established in the market is a factor for their re-entry into the trade on a re-organized lower cost basis.

There is no such thing, therefore, as eliminating competition by below-cost selling. The fallacy of such competitive tactics has proven futile and of no benefit to the instigators nor the industry. No other industry has ever prospered by such cut-price wars indulged in by leading producers.

What was a low cost mill last year may be a high cost mill next year, and to-day's low cost mill, which was built by men, money and machinery may be duplicated at a lower cost next year by the combination of other men, money and machinery. No man—nor any corporation of men—ever yet succeeded in gaining control of the market through such subversive tactics.

One thing is certain in the paper industry—that either prices must raise and the industry put upon a profitable basis or a re-organization of the impotent factors of the industry will take place either through voluntary action from within these various corporations or involuntary action from without.

This is not prophecy—it is merely recalling the history of all previous situations of a like nature in all other industries.

EDITORIAL

Subjects for Tappi Discussion

THE annual convention of the Technical Association of the Pulp and Paper Industry will this year be held as customarily for two years past at the Hotel Pennsylvania, New York City, beginning with a general session on Tuesday morning, February 17. A good program of papers and committee meetings has been provided and the closing event will be a luncheon meeting on the afternoon of Thursday, February 19. In addition to election of officers there will be addresses at the luncheon meeting on topics of interest by specialists, which will cover such subjects as patents, vocational education, and mill management.

Members of the association have been provided with short abstracts of some of the papers and committee reports, and a review of these may serve to indicate the character of the work and research with which our paper technologists and engineers are concerning themselves. An outline follows:

Progress in the study of physical characteristics of wood pulp is represented by several committee reports, among which may be noted methods of testing unbleached sulphite and kraft pulps which involves the use of mechanical, rather than manual disintegration and a consistence of 1.75 per cent air dry rather than the present tentative beater method which requires 2.5 per cent air dry; longer time intervals for the removal of samples, especially for kraft are also recommended.

Some minor modifications of the method for determining the purity of alpha cellulose are advised, and the experiences and opinions of the technical director of a paper mill on the manipulation of beater rolls, measurement of power consumption and indices of hydration will be given. Included among papers of this character will be a review of the development of the suction roll for paper machines, a summary of advanced methods in water purification for color removal, and some technical and economic considerations of the nonfibrous raw materials used in paper mills which will cover alum, glue, casein, chlorine, clay, lime, rosin, salt cake, starch and sulphur.

Among the engineering contributions will be discussions of developments in the reclamation and salvage of flue heat, and an analysis of the merits of steam and power plant locations. Heat conservation will be considered in the discussion of a new heat exchanger having special application to the recovery of heat units when a digester is blown and in the drying of paper and pulp. In another paper, a formula is given for determining the actual steam consumption in the drying of paper. In a contribution by a Canadian member, a "blow through" system of paper machine drainage will be explained and the advantages enumerated. There will also be a discussion of the steam accumulator in the board mill. Some of the advantages of purchasing rather than manufacturing steam and electricity by paper mills will be indicated in a paper on the purchase of electric energy and steam by mills in the southern part of the United States.

Corrosion resistance of metals is attracting more and more attention and there will be several papers dealing with the subject as it affects the sulphite industry. The enormous size of the industry's annual corrosion bill, with an estimate of the cost of corrosion to the pulp and paper mill, will be made. The new 20 per cent chromium and 10 per cent nickel ferrous alloy and its resistance to a solution of sodium bisulphite and sulphurous acid has been made the subject of tests, and particulars of these will be given. It is said that perhaps the newest and most interesting material of construction for pulp and paper mill equipment is carbon. In this paper, results of trial installations for steam joints for drying cylinders, suction box covers, pulp digester linings and other purposes are included.

The foregoing touches only on some of the high spots of an interesting program that is calculated to demonstrate the advances in the scientific study of pulp and paper manufacture made during the past year, and a successful meeting is expected.

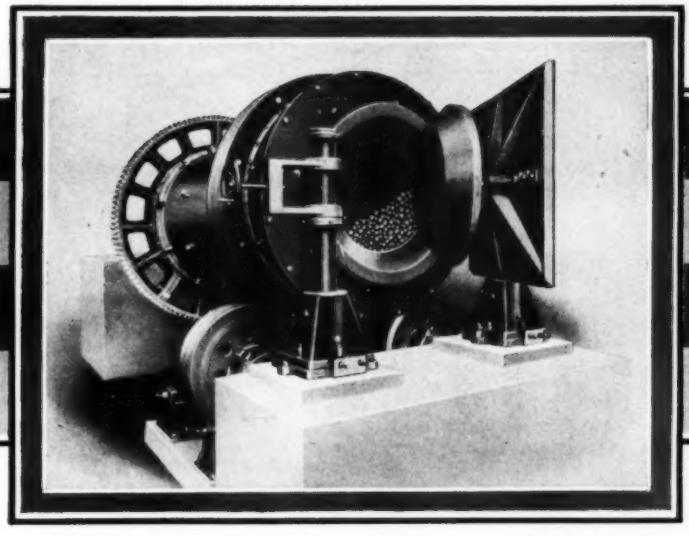
Light and Shadows

ALONG one of the highways in Canada, a little church stands in a grove of spruce trees. In front of this church is a large sign bearing the inscription "Look Toward the Light and All the Shadows Will Be Behind You." Being connected with a church, this no doubt relates to things which are spiritual, but this same lesson can be taken in a material way as well as spiritual.

Every one has been looking backwards and seeing shadows, or looking into the dark instead of toward the sunshine. There is probably no need of looking back into 1930 except for the lessons which it may have taught us. The thing to do from now on is to look toward the light—to look forward and think forward.

We must devote our thoughts and energies to the things of 1931 and forget those of 1930. This year is not going to be the easiest year that we have ever had, but if we have sufficient stamina and courage we will find by the end of the year that the figures will be in the black column instead of in the red.

The people of America are going to eat, wear clothes and enjoy themselves during this year as well as in any past year. Some one is going to make the stationery for correspondence for nearly



Use Marcy Rod Mills *for Beating Paper Pulp*

MARCY ROD MILLS are showing a saving in power consumption running from 30% to 60% over former methods of beating paper pulp. This saving in power alone is greatly reducing production costs per ton and this saving will quickly pay for the installation of a Marcy Rod Mill.

A better paper stock is being produced by Marcy Rod Mills because of the true beating action of the rods insuring longer fibers and no cutting. Knots and chaffy material as well as ground wood screenings and rag waste are being worked up into valuable paper stock. Shives, shiners and fiber bundles are being eliminated with cleaner stock as the result. Better benders are also produced because of the longer fibers resulting from this method of beating. Absolute control is afforded the paper maker by the Marcy Rod Mill. Through the large open door he can always observe exactly what is taking place within the mill. The formation of a pool at the bottom of the rod pile is prevented and uniform results can always be obtained by this constant control. The interior is readily accessible for the replacement of worn rods and lining. The low pulp line is assured by the open end discharge which prevents the by-passing of stock and insures all of the pulp receiving its full portion of rod beating.

There are rod mills and rod mills but we believe that the Marcy Rod Mill represents in every case the greatest value for the expenditure involved. They are so priced that their performance will more than justify the investment. You might find it profitable to study their application to your beating problem. *Our engineers will gladly assist.*

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MASSCO

E D I T O R I A L

125,000,000 people, the paper for wedding invitations, as well as paper and board for innumerable other purposes, as has been done in the past.

Each of us can be one of these somebodies, but it will take good service and a lot of advertising to get the orders.

As a writer in **Nation's Business** recently expressed it: "One would think, from the wailing, that we had all been wiped out by a terrible catastrophe of Nature—a Noah's flood, a shifting of a Gulf Stream, or by a dreadful holocaust.

"Yet we are all here. The stores are still open. The trains are running. You can get that number on the telephone. The traffic problem is still lively. Movie houses are no nearer seating all their customers. Children are what they always were. Young folks are getting married. Preachers thunder against the laxity of the age. Amos 'n' Andy are still in the taxicab business. Doctors and dentists make appointments weeks ahead. Lawyers' briefs are just as long. Hardy commuters make the 8:15 in less than nothing flat. And under Nature's white coverlet, bud and blossom await the sure coming of spring."

Yes, we will all carry on in 1931 the same as we have in past years, but we may have to work and think a little harder, play a little less and devote our energies and time to the upbuilding of this great industry, and if we will do this, when the end of the year comes we will wonder why we worried so much over the loss of business, and again realize that many of the things about which we worry most, never happen.

Suggested Uses for a New Product

SOME interest has been aroused among coated paper manufacturers in the value of titanium dioxide as an addition to china clay for the purpose of increasing the lustre and the covering properties of a clay coating mixture. A preparation of titanium dioxide has recently made its appearance on the market under a proprietary name. But this is not the first product of its kind to be offered to the trade, since titanium dioxide has been made and sold under the name Pure Titanium Oxide by one American firm for upwards of five years. There are available therefore two sources of domestic material, in addition to which there is probably on the market some imported material handled by brokers in chemicals. There is also a titanium compound with a barium base made by precipitating titanium dioxide upon precipitated barium sulphate (blanc fixe), the combination being afterwards united under the application of intense heat. The principal use of this compound is in exterior paints, where it may displace the lead or in part the lead and zinc. It has what is known technically as great hiding power as a pigment; in other words, a high opaque property.

Titanium dioxide, or pure titanium oxide, is said to give good results when mixed in the proportion of from five to ten per cent with coating clay, but like certain other chemicals which have been recommended for this or a similar purpose it is a somewhat expensive material for use in a coating mill. One of our friends in the coated paper branch of the business supplies the information that 15 per cent of the barium-titanium compound gives a nice flat white sheet, while it is listed for sale at 6½ to 7c per lb., as compared with 18 to 20c for the pure titanium dioxide.

The most informing literature on the subject of titanium and its compounds is an American Chemical Society monograph entitled **Titanium, With Special Reference to the Analysis of Titaniferous Substances,** the author of which is William M. Thornton, Jr., Associate in Chemistry in the John Hopkins University. This book was published by the Chemical Catalog Company, New York, in June, 1927, at the price of $3.75. The book treats of the discovery of titanium, its appearance in nature, general chemistry and the industrial application of titanium and its compounds. Beyond a reference to the use of the compound of barium sulphate and titanium dioxide in the manufacture of wallpaper there is no reference to its uses in paper coating, though the author remarks that "it is impossible to say into which of the useful arts this excellent pigment may not sooner or later find its way." Indeed, the possibilities of using this voluminous and highly opaque mineral in the manufacture of a thin opaque sheet like Bible paper have already appealed to some in the trade. Titanium dioxide has several times the capacity of any other substance heretofore employed for imparting opacity to paper, and the addition of 1 per cent to the furnish of a thin book paper would probably produce excellent results.

The element titanium, curiously enough, was discovered in Cornwall, England, where china clay came from originally. Titanium as discovered in Cornwall went by the name of "menakine" from the parish of Menachan where it was found in 1791 by William Gregor, a priest of the parish. Little attention was paid to the subject until Klaproth in 1797 identified the oxide of menakanite with that which he had extracted from rutile, his name for the substance being "titanic earth," whence titanium, in allusion to the "Titans," fabled giants of ancient mythology, as pointed out by Doctor Thornton in the opening chapter of his valuable work on **Titanium.**

Large deposits of titanium ore are said to occur in different parts of North America, one being reported recently from Virginia.

THE PAPER INDUSTRY

REG. U. S. PAT. OFF.

Vol. XII FEBRUARY, 1931 No. 11

Improved Constant Humidity Room

Can Be Built and Equipped for Approximately $1,000

By JAMES d'A. CLARK

WITH the modern urge toward more exact measurements of the physical characteristics of pulp and paper, the need for a constant humidity room in every paper mill laboratory becomes more pressing. The main deterrent from building one was the apparent cost, and it was not until Dr. Ruff published his design for a constant humidity room[1] that it was realized such a piece of equipment need not be unduly expensive. The room described here was designed after studying the paper mentioned, and put into operation in England at the end of 1928 since when it has been performing with complete satisfaction. The total cost for both room and equipment was approximately $1,000.

It was found as Dr. Ruff suggested in his paper, that with cold outside air, the humidifier was insufficient to maintain a relative humidity of 65 per cent and an alternative design is here described. Small electric fans placed in various parts of the room not only occupy useful space but their action in causing strong currents of air is a nuisance when working with paper specimens. Neither small fans nor electric relays are employed and all the apparatus and equipment in the room, except the hygrostat and the thermostats, are housed beneath the benches in accessible positions and then covered in, so that the interior appearance of the room is very simple and neat and every corner of it may be used to its greatest advantage.

A sectional plan, elevation and end view are shown in Figs. 1, 2 and 3, and a wiring diagram in Fig. 4.

The inside dimensions of the room are 9½ x 6½ x 7 ft. made of ¾-inch tongued and grooved sheathing with 2-inch thick corkboard insulation on the floor, ceiling and walls, and the outer door is similarly insulated. The lighting bulbs are placed outside and above two double windows. The benches are arranged as shown with a specially low bench opposite the door to conveniently carry the Schopper Tensile apparatus. An alternative position for one of the benches is shown in Fig. 1. All the woodwork, with the exception of the bench tops, are well painted and enamelled.

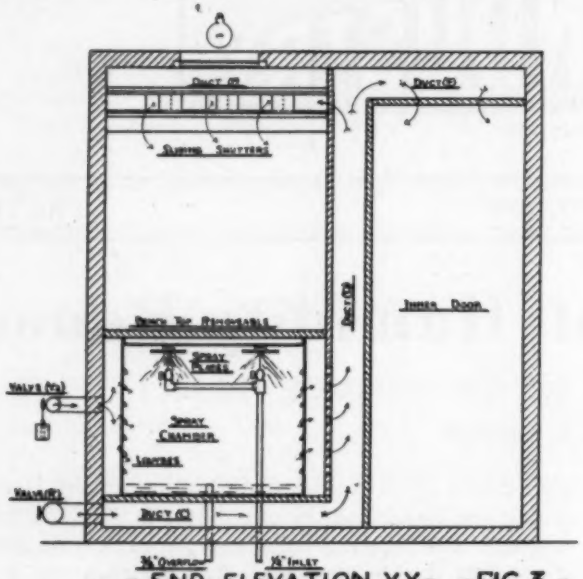
The hygrostat (K) is of special construction and is very simple, yet efficient. (See Fig. 5). It consists of a 3-ft. strip of fairly heavy vegetable parchment about 1 inch wide connected to a pivoted arm carrying two one-way mercury switches each of 5 amp. capacity. Each of the mercury switches is bound with copper wire or otherwise fastened to a small strip of hard fiber or ebonite and by means of three screws as shown, each may be adjusted so that when the arm is horizontal both switches are open and a small inclination of the arm up or down causes the mercury in one or the other of the switches to close its contacts. Suitable mercury switches were obtained from Isenthal and Company, London, England, costing about $1 each.

The tensile strength of such a strip of vegetable parchment is about 30 pounds, so a large leverage is possible, and, using the cross direction of the paper as being the most sensitive to moisture changes, a one per cent change in relative humidity causes the arm to describe a large arc. A closed spiral spring is fitted to the hook on the pivoted arm to prevent damage when the arm rises against the upper stop. The parchment strip has been found to remain remarkably permanent and adjustment by means of the screw and lock nut at the top has not been made

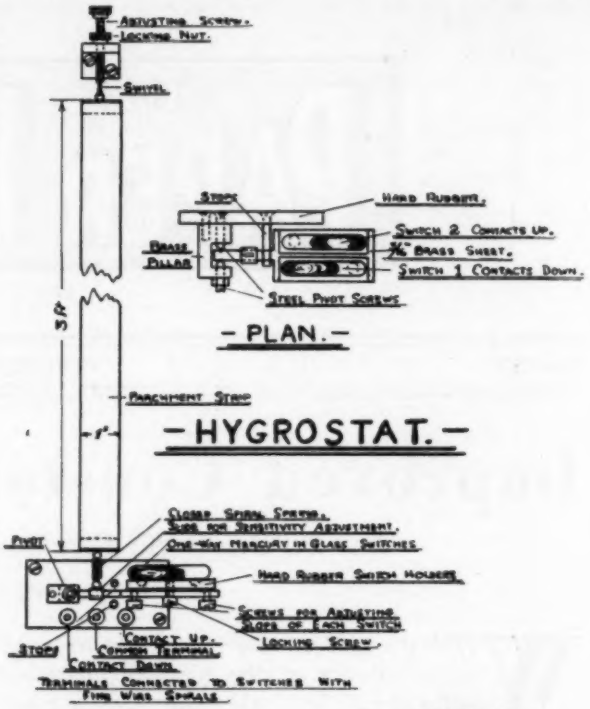
[1] H. T. Ruff. Paper Trade Journal, Aug. 25, 1927.

in practice for two years except two or three times to change the humidity to other values for experimental purposes.

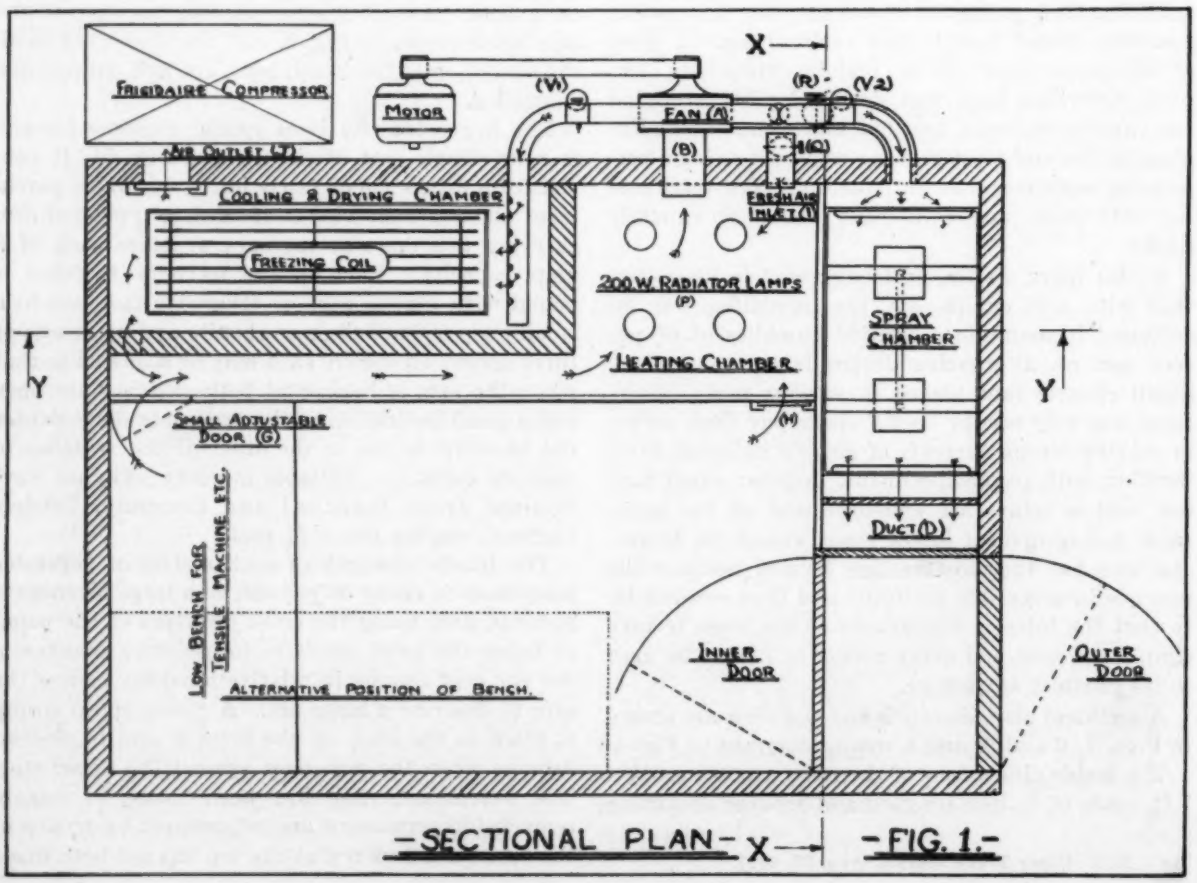
The thermostats, (N) and (O), are made by the Rheostatic Company of Slough, Bucks, England.



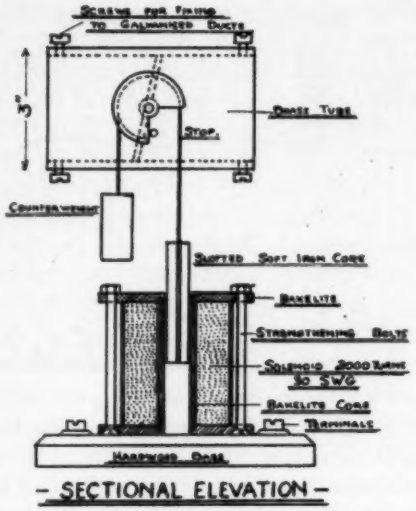
-END ELEVATION XX- -FIG.3.-



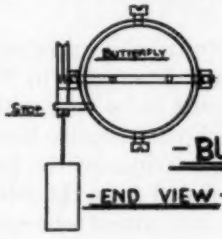
-FIG.5.-



-SECTIONAL PLAN- -FIG. 1.-



- SECTIONAL ELEVATION -

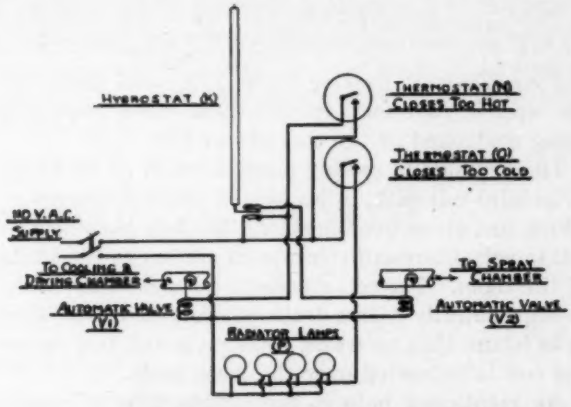


- END VIEW -

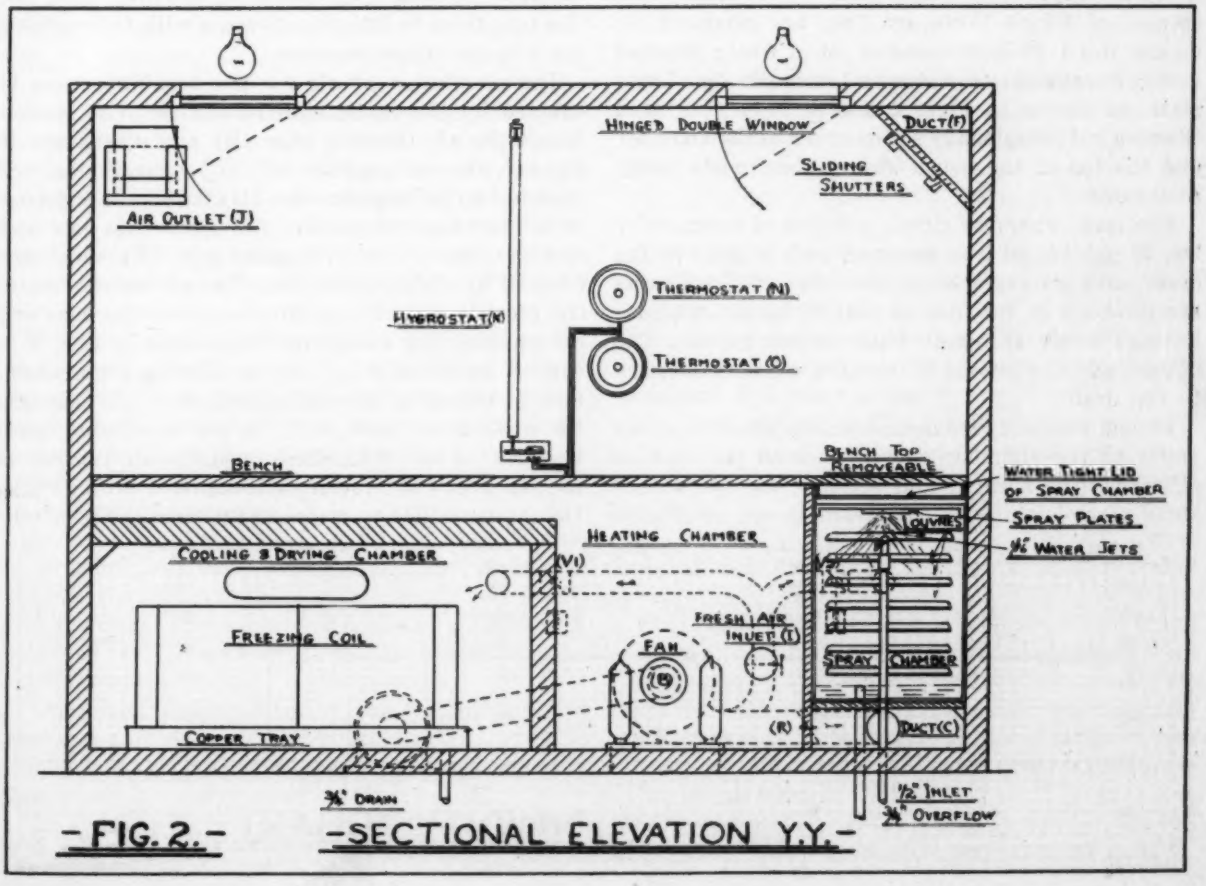
- BUTTERFLY VALVES -

- FIG. 6. -

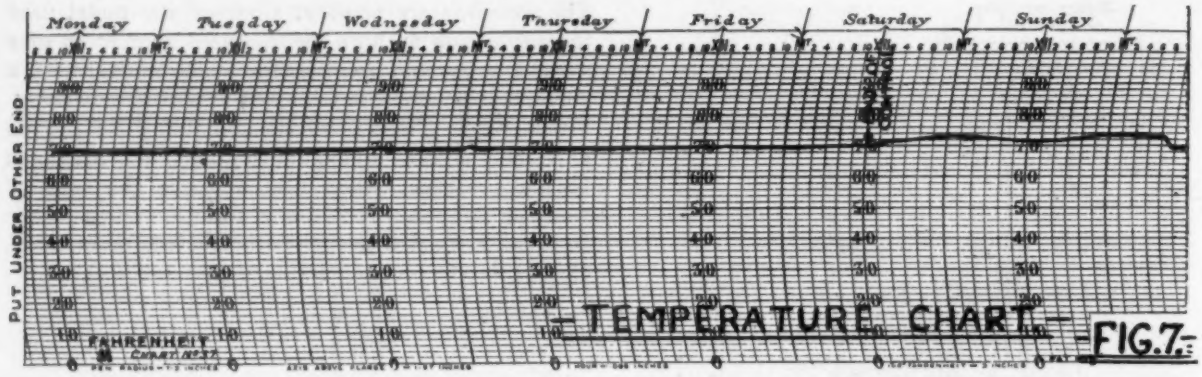
The elements are made of thermostatic metal used in conjunction with an incorporated magnet to give a quick make and break and are able to deal with a current of 10 amps. A.C. at 110 V. without sparking. Their cost is about $10 each and they have proved extremely reliable and satisfactory. One is arranged to make contact when heated above the selected working temperature (70 deg. Fahr.), and the other to break contact when cooled below this point. Each thermostat has a range of about 50 deg. Fahr.



- WIRING DIAGRAM - - FIG. 4. -



- FIG. 2. - - SECTIONAL ELEVATION Y.Y. -



Four 200-watt heating bulbs (P), used generally for electric radiators, furnish heat when required, being controlled by the thermostat (O).

The drying and cooling mechanism is an 88 Fahr. Frigidaire coil with ½ hp. water cooled compressor, which has given good service. The box housing the coil is very thoroughly insulated similar to the walls of the room. The coil stands in a copper tray made to slope slightly with a drain at the lowest end. This is to insure that no water remains in the tray when the coil is defrosted over the week ends.

As mentioned before, the simple type of water tray humidifier was found to be unsatisfactory for cold weather and after a number of experiments the spray-chamber type was found to be best. The sprays, of which there are two, are produced by means of a 1/16-inch diameter jet of water directed vertically against a horizontal smooth flat brass plate, as shown in Figs. 2 and 3. The jets need cleaning out occasionally so the cover of the chamber and the top of the bench above it are made easily removable.

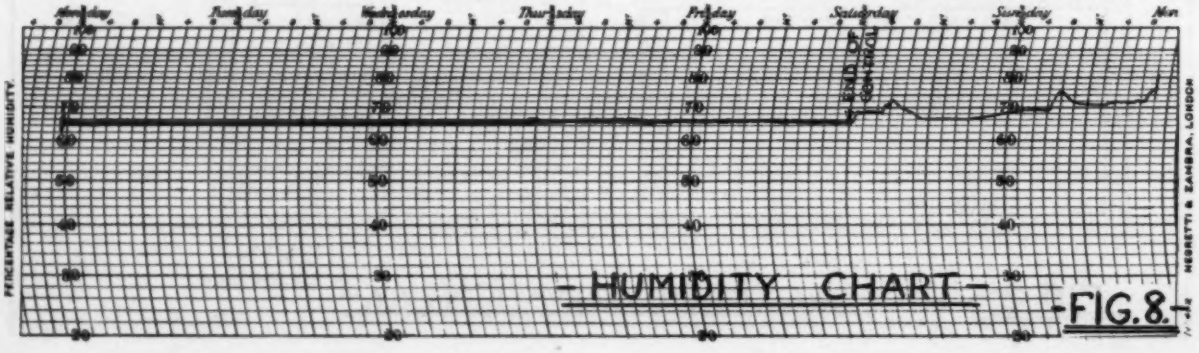
The spray chamber simply consists of rectangular box of galvanized iron provided with a tight fitting cover, and louvres opening inwards and downwards are provided at its ends so that while air can pass through freely, the spray water cannot get out. The bottom of the chamber is provided with an overflow to the drain.

In cold weather care must be taken that the spray water to the chamber is well over 53 per cent as otherwise the spray would actually dry the air instead of moistening it. A steam jacket or electric heating element on the water-supply pipe is desirable. If the spray-water supply is electrically heated, only one spray is necessary and the temperature of the spray water can be satisfactorily controlled by Type H Immersion thermostat made by the Rheostatic Co. at the same price.

The construction of the electrically operated butterfly valves (V_1) and (V_2) is illustrated in Fig. 6. Their operation has been found to be very satisfactory, the only attention which they require being an occasional drop of oil on the bearings of the butterfly spindle and the removal of fluff from the solenoid.

The whole of the apparatus placed outside the room has been covered by a bench, the front of which is ventilated by panels of machine wire. In this way there is little interference with the working space in the adjoining room.

The circulation of air for the humidity room is effected by the centrifugal blower fan (A), which draws the air through pipe (B) and discharges it through the rectangular duct (C) beneath the wet chamber up rectangular duct (D) beside the entrance to the rectangular opening (E) above the door and also the holes in the triangular duct (F) which are covered by sliding shutters. The air sweeps round the room in a clockwise direction from the door and on reaching the corner near the holes in (F), it is carried downwards by the air issuing from them, mainly round to the adjustable door (G) beneath the main bench and partly to the adjustable opening (H). From both these openings air returns to the fan inlet (B). Fresh air is supplied through pipe (I) and controlled by means of the hand operated but-



terfly valve (Q), and air leaves the room through the adjustable slot (J), near the ceiling.

The hygrostat (K), Fig. 5, operates so that when the air in the room becomes too moist, the parchment strip stretches and the arm carrying the mercury switches is dipped, causing the mercury in switch (1) to close its contact and open the electrically operated butterfly valve (V_2), allowing part of the air from the fan to be blown over the freezing coil of the Frigidaire apparatus which, in turn, causes the moisture in the air to be deposited upon it, so drying the air. The cold dry air issues from the small opening in the freezing coil chamber opposite the adjustable door (G) (Fig. 1.).

If the air becomes too dry, the parchment shrinks, tipping up the switches until the mercury in switch (2) closes its contacts and causes the electrically operated butterfly valve (V_1) to close, so allowing a portion of the air being circulated to pass through the spray chamber.

If the air is too cold, thermostat (O) closes, lighting one or more of the radiator lamps (P) over which all the air is circulated; and, if too hot, thermostat (H) closes and again butterfly valve (V_3) is opened, causing part of the air to flow over the freezing coil to cool it.

Figs. 7 and 8 respectively show charts of temperature and relative humidity taken from the humidity room for a week's run, the equipment being started at 11 a. m. on Monday and shut down at 12 noon on Saturday.

Lessons in Paper Making

Cylinder Machine Series

Lesson II—Vats, Molds, Formation

By HARRY WILLIAMSON

Consulting Specialist with L. V. Estes Incorporated, Chicago

THE closing paragraph of last month's article made this broad general statement, "Whether we are making paper with a hand mold, a fourdrinier machine, a cylinder machine, or a combination of both, the fundamental principles are the same."

We have no desire to annoy our readers by repetition, neither must we sacrifice clarity of understanding by trying to avoid repetition. You know when we were kids in school we had to chant in unison "one and one makes two, two and two makes four" until we surely remembered. Even in more mature years, Dr. Coue advised us to say "Every day in every way, etc."

When we consider the meager diversity of possible mechanical applications of papermaking principles against the multiple physical characteristics, the wide range of entirely different papers required from a single machine in these competitive days, we papermakers have a very great need to exercise the famous doctor's philosophy.

We have a greater need to fix securely in our minds the things we **can** accomplish, and, more important, if we want to save our employers from needless expenditure with unsatisfactory results to the buyer, we must know the things we **can not** accomplish.

Particularly is this true of the formation of a sheet of paper on a cylinder mold.

Therefore, we will split that first broad general statement into smaller parts.

The formation of **all** paper is **effected** by mixing stock and water to a very dilute consistency, draining the water through a wire mesh and leaving the stock, now a more or less woven sheet of paper, on the surface of the wire mesh ready to be picked off.

The **quality** of the formation of **all** paper is **affected** by:

(1) The **consistency** of the mixed volume.
(2) The **velocity of flow** of the mixed volume, both in approach to and in actual point of contact with the wire mesh.
(3) The rate at which the water **drains through** the wire mesh.

These three statements cover a multitude of papermaking problems. **Every change in the length of the fibers, every change in the blend of the different fibers, every change in the hydration of the fibers will affect all these three vital factors governing the formation of a sheet of paper.**

The ideal **objective** when forming a sheet of paper is to have a sheet equal in all the specified qualities **over every square inch of the area with or against the grain.**

Of course, we never get it. Incidentally, most paper salesmen tell us we never come within a mile of it.

For the moment we are not concerned with the **preparation** of the stock. We are concerned with the **mechanical flexibility of the machine itself, the range of control left us with which to obtain the specified quality of paper and at the same time take care of any fluctuation which may occur in the quality or preparation of the stock.**

For purposes of this discussion we will use one vat and cylinder mold, a complete papermaking unit.

The Vat

In Figure 1, we see the average set-up of the cylinder vat. In this case the mixed volume enters the vat at the center of the bottom of the rear compartment. The arrows show the direction of flow until the mixed volume, stock and water, arrives in the vat circle. The cylinder mold, driven by the felt is rotating **away** from the initial direction of flow. The water, draining through the wire mesh covering of

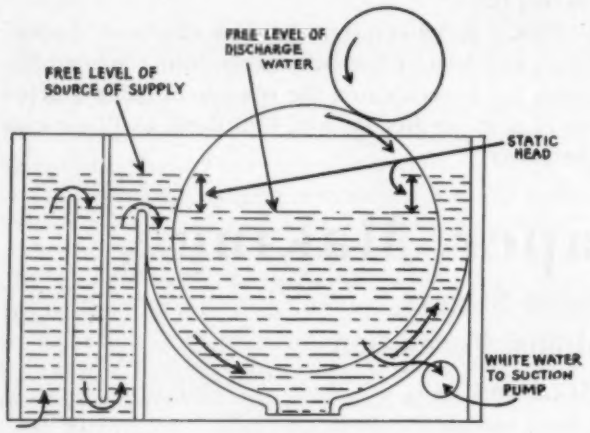


Figure 1

the cylinder mold, leaves the inside of the cylinder mold at each end, passes through pipes to the inlet side of the suction pump and is re-discharged into the mixing box to be used in continuous cycle.

The velocity of flow and the volume of this water evacuated from the inside of the mold by the suction pump is given the common term **"suction"** and is controlled by:

(1) The capacity of the pump.
(2) Regulating the height of dams, or operating valves **between** the ends of the mold and the **inlet** to the suction pump, or
(3) By operating valves on the **outlet** side of the suction pump.

This general term, **suction,** as applied to the average cylinder machine is a little ambiguous. It must not be confused with the same term as applied to the operation of suction boxes or suction couch rolls.

In the operation of the cylinder mold, suction indicates the difference in level between the mixed volume on the **outside** of the cylinder mold, and the level of the white water to be evacuated from the **inside** of the cylinder mold.

There is no direct ratio between the suction applied and atmospheric pressure on the surface of the forming sheet, as is the case with vacuum, because the air is not exhausted from the inside of the cylinder mold.

The general term, suction, applied to the average cylinder machine, (molds are now being built which permit the application of vacuum principles on the inside of the mold) could be more adequately transposed to **"induced suction."**

We will briefly describe what happens as the mixed volume comes in contact with the rotating cylinder mold.

Flowing round the vat circle, the level of the mixed volume is equalized so that the cylinder mold is equally immersed in the liquid at all points of surface contact.

As the **clean** cylinder mold leaves the couch roll and enters the mixed volume, the water **rapidly rushes** through the clean wire mesh and the formation of the stock fibers into a sheet of paper commences. As the **density** of the sheet increases, it forms a seal over the wire mesh offering a resistance to the water passing through it. The drainage of water through the wire mesh therefore **decreases** as the sheet forms. This initial **rapid velocity** of the water through the clean wire mesh has a tendency to pull the fibers round the vat circle and has a great deal to do with the **grainy** effect common in cylinder papers.

Water plus stock comes in contact with the outside of the rotating cylinder mold; water **minus** stock (except the small amount usually found in white water) leaves the **inside** of the cylinder mold.

Hence the difference in level, termed **"suction."**

If we say we are going to "put on more suction," it means we intend to either **raise** the level of the mixed volume **outside** the mold, and leave the level of the water inside the mold the same, or we intend to **lower** the level of the water inside the mold and leave the level of the mixed volume the same.

For very fine adjustment of formation, a slight change in **both** levels is advocated.

The greater distance between levels, the greater the suction applied. Formation is effected by this difference in liquid levels. **If both levels (outside and inside the mold) were equal, formation would not take place.**

As there is a difference in level, there must be a difference in **pressure,** the **greater pressure** of the higher liquid level exerted against the **lesser pressure** of the lower liquid level.

Cameron's Hydraulic Data, published by Ingersol-Rand Co. gives us the following definition of **"static head,"** the difference between two liquid levels exerting their pressure against each other: "Static Head is the vertical distance in feet between the free level of the source of supply and the point of free discharge, or to the level of the free surface of the discharge water."

In the operation of a cylinder mold, "the free level of the source of supply" is the level of the mixed volume outside the mold, and the "free level of the surface of the discharge water" is the level of the white water inside the mold.

It is this pressure, plus capillary attraction, that holds the forming sheet of paper against the surface

of the cylinder mold while it is rotating, immersed, in the liquid mixed volume.

We can therefore say "formation of paper is made possible on a cylinder mold by the effective pressure represented by the **static head,** the difference in level between the mixed volume on the outside of the mold and the level of the white water on the inside of the mold, commonly described as **"suction."**

How many pounds pressure per square inch does this **static head** represent?

We all have experienced that annoying machine delay, a **drop-off.** The sheet partially formed, dropping off the mold and rolling up in the bottom of the vat causing a shut-down Obviously, if the weight of paper per square inch thus formed is greater than the pounds pressure per square inch exerted to hold the paper in place, then the law of gravity will cause the paper to drop off the face of the cylinder mold during the rotation of the mold.

The pressure of water for every foot in height is 0.43 pounds per square inch. For **one inch** difference in liquid levels, then, the pressure available to hold the forming sheet on the mold would be 0.036 pounds per square inch.

For an example, suppose we use an extreme instance. Assuming we wish to make a sheet on this single cylinder mold weighing 58 lb. per thousand square feet. Such a sheet would weigh 0.0004 pounds per square inch at the dry end. If the consistency of the mixed volume in the vat is 0.5 per cent stock and 99.5 per cent water, then each square inch on the mold would weigh 0.08 pounds. With a one-inch static head, we would have an available pressure of only 0.036 pounds per square inch to hold 0.08 pounds weight per square inch of wet paper against the surface of the mold.

We would need at least two and one-half inches of static head to prevent a drop-off.

Now right here we must be careful not to convey a wrong impression. We have used the term "difference in levels" so much, our readers **might** assume that this static head pressure is only operative at the actual points where the difference in levels occur. This is not true. **The static head pressure is equally applied over every square inch of the immersed area of the cylinder mold.**

This leads us to the much debated question, "where does the formation of the sheet take place?" or a question perhaps more often asked, "At what point in the rotation of the cylinder mold does the greater portion of the sheet form?"

If formation is made possible only by the use of a certain available pressure, then the greatest volume of formation **must** take place over that area of the cylinder mold, during immersion, **where the resistance against the applied pressure is the least.**

Let us suppose the **whole** of the rotating cylinder is immersed in the mixed volume and the surface of the wire mesh is **entirely covered with a sheet of oilcloth so that no water can pass through the mesh.** If the cylinder is 42 inches in diameter, we would have a static head pressure equal to 1.52 pounds per square inch over the entire area of immersed oilcloth covered cylinder face.

Formation could **not** take place **because** there **is no induced suction flow of water through** the mesh to form the fibers into a sheet **on** the mesh.

The greater the **induced flow** of water through the mesh, the greater the amount of stock formed **on** the mesh.

As the cylinder rotates from the pressure of the couch roll, the wire mesh is cleaned with a water shower. Continuing rotation, the cleaned wire mesh becomes immersed in the mixed volume. **At this point of rotation,** where the cleaned wire mesh **is** in contact with the mixed volume on the outside and **not** in contact with the white water on the inside, the greatest volume of formation takes place. The flow of water through the mesh meets **the least resistance** and **the velocity** of flow through the mesh is greatest.

As the **same area** of wire mesh, continuing rotation, emerges from contact with the white water on the inside and **maintains** contact with the mixed volume on the outside, the **second greatest volume** of formation takes place.

Does formation take place at any other point of immersion besides the two described?

This is a question often asked, perhaps because we cannot **see** under the surface of the mixed volume and again because it is hard to imagine fibers being pressed against the surface of the wire mesh at the bottom vertical center of the mold. Again, on so many different kinds of stock, the difference in the hydration developed, free stock and slow stock, short stock and long stock, each stock behaving differently, perhaps this is the cause of so many different opinions on this question.

We answer this question, **yes** formation does so take place, and we also say—**no,** formation does not take place. How is that for an "Irish" answer?

We have seen that formation is **effected** by pressure and **affected** by **velocity of flow** or the **induced suction** of water **through** the wire mesh. We know that if the paper is heavier than the pressure, not only will there be no more formation but the sheet already formed will drop off the mold. We know that the forming sheet gradually offers a greater resistance to the passage of water through it, and as this occurs, less formation takes place. We know that if a **complete seal is over the surface of the wire mesh, formation cannot take place.** From these facts we know, although we cannot actually see the action take place, that **if we maintain a sufficient static head pressure and gradually seal the wire mesh with a forming sheet of paper, we can**

(Continued on page 1868)

Current Thought by William Sibley

This Matter of Unemployment

IN the December issue of THE PAPER INDUSTRY, I took occasion to quote a paragraph or two from Mr. Glenn Griswold's column in the **Chicago Journal of Commerce** in which he said:

"The old rules of corporate management in times of stress were generally abandoned in our recent experience. The first of these rules was that the corporation executive should concern himself with taking care of his property and saving the utmost of his stockholder's money. Plants were closed and barricaded if it was found possible to remain closed more cheaply than it was to operate. If a corporation treasury held any money it was hoarded because credit was uncertain and costly. Wages were cut and one man took the place of two wherever it was physically possible. Unemployment and distress were taken for granted, and public charities were left to deal with them inadequately.

"The reversal of this attitude in the last year and a half is a distinct economical and sociological phenomenon. Stockholders have ceased to be the sole concern of a surprisingly large number of corporation managers. Corporation capital has been put to work building and developing plant facilities that might have been postponed economically for months, and in some cases for years.

"Work has been apportioned on a basis far less economically than possible, merely to provide jobs. Business has put new machinery into its state and national organizations, to spend money for the relief of unemployment, and has co-operated in a manner never known before with municipal, state and national organizations of government; and in almost every city and state organized business has taken upon its shoulders the relief and charity obligations of the community.

"There is a growing disposition to consider what has been accomplished as the initiation of fixed policies of management, and to carry over into times of prosperity the idea that business has a continuing obligation in the employment situation. There is reason to hope that out of this recent experience, industrial leaders will evolve theories and practices whereby the peaks and valleys of the business curve may be reduced."

To all of which we will readily add "Amen," but concerning which we cannot help but express doubts since business, being founded on the factory-mass production basis, there must by sheer force of circumstances be endured peaks and valleys in production, and hence in employment.

That Mr. Griswold has exposed a rapidly developing tendency, however, and has voiced a growing belief on the part of many thoughtful executives is evidenced by the more recent statement of Mr. Owen D. Young, when he said: "The world does not owe a man a living, but business, if it is to fulfill its ideals, owes man an opportunity to earn a living." Other capable business leaders have recently expressed parallel thoughts, although to my knowledge, few of them have gone as far as Mr. Young in asserting that "business owes a man an opportunity to earn a living." Rather, most of the statements I have read seem inclined to leave the burden of providing an "opportunity" to society as a whole, or even government.

And after all—isn't that the happy medium between the old-fashioned business management which fostered unemployment for the purpose of depressing the wage scale, and the new, extreme idea that the "ideals" of business should compel that business to care for the unemployed? Surely we are rich and wise enough to sustain a government which, in times of stress or depression, will rise to the occasion of the emergency and provide the unemployed with public duty service—and thus permit society to benefit, in part, by such emergency depressions.

Personally, I disagree with the promise that business "owes" men an opportunity to earn a living. I don't believe business owes anybody anything beyond honest conduct. During recent years, employer-employee relations have lifted themselves to a level where the management which insists upon pursuing the "workmen-be-damned" policy will find themselves with costly turnover and inefficient help. Employee welfare has largely become accepted as a part of business management, so that every management must provide for the well-being of its personnel. Beyond this obligation, there seems to me no other than honest conduct. The problem of unemployment correction—the necessity for affording the unemployed an opportunity to earn a living—

rests (or should rest) on society as a whole, since it is the whole of society that is the beneficiary of our factory method of production—the thing that gives rise to these spasmodic flushes of unemployment.

As I see it, there are two major reasons for the uncomfortable volume of unemployment we have endured during the past 12 months. First: serious, world-wide overproduction of practically all commodities (due in a large measure to the tremendous acceleration of mass production brought about by the World War), and second: a distressing inclination on the part of most everyone to throw the burden of misfortune on the Government—to look to the Capital at Washington as the all-powerful provider of pork chops and cream gravy.

Probably the productive capacity of not only the United States, but all other industrial nations of the world, exceeds by 25 per cent our consuming capacity. When our production is high, unemployment low, and there are funds available for expansion (whether or not that production or expansion is warranted), the country is said to be prosperous and that times are good. But when producers are operating at only a fraction of their capacity; curtailment rather than expansion is the order of the day, and pay-rolls are being cut (whether or not that curtailment is essential to future welfare) we universally understand that times are depressing and that business is bad. And . . . whether we like it or not . . , we might as well make up our minds to the fact that so long as our factory or "mass" production system remains—until our whole scheme of commodity production is replaced by an entirely different and much better system—we will have such cycles of business welfare. As in war, we have not yet outgrown the probability of violent fluctuations or emergencies. That experience will eventually teach us how to overcome these difficult emergencies, there is no doubt. How long will be that process of learning, no one can say. Certainly it will not be immediate. And so I will suggest, in gratefulness to better minds than my own, a few remedial recommendations for the intervening years.

A second reason for our present large volume of unemployed, and the distressing persistence of this almost needless depression, may be found in the unreasoning and unfounded dependence too many of us are placing on our National Government. Whole classes of American people have, since the war, developed an alarming dependence upon the National Government—and usually on its Treasury. This sort of thing has not long characterized the American people, but it is a characteristic which, if permitted to enlarge upon itself, will undermine our whole structure and leave us with nothing but a shell for a government—or worse, a make-shift alternative.

It was only a few years ago that practically every industry in America, including agriculture, was entirely self-sustaining and self-profiting. Up to the point where there were no more good, free lands for homesteaders and this nation was predominately agricultural, our farmers made comfortable livings off their farms and garnered the "plus" of life in the increasing value of their property. Now that agriculture has reached its peak in the United States and there is no further steady increase in the value of farm property, and even the "comfortable living" is being jeopardized by overproduction, about 2,000,000 of our 6,000,000 farmers are setting up a howl that is echoing and re-echoing in the Capitol Dome at Washington—all to the distinct, vote-getting benefit of a few self-seeking Senators. Prohibition being a deep-going national reform which must have at least a generation of time to prove its merits or demerits (since such reforms cannot reveal their outcome without a second generation) has upset a good many personal apple carts, with the result that all the former cart pushers are looking to Washington to "do something about it." Temporarily distressed Tennesseeans, expectant mothers, indigent aged, American Legionnaires, and a multiplicity of other classes, are now storming the United States Treasury in search of their individual pet "reliefs," ranging from $25,000,000 for the destitute and the Shepard-Towner bill, to old age pensions and doles, or the 15-year advance dating on the bonus payments.

All such things are a most unhealthy indication of National Governmental deterioration. If we are to persist in depending upon the National Government to help us out of the troubles we have gotten ourselves into, then we presently will find ourselves in a new kind of trouble with no government at all. The recent developments in this regard—from the dependence of American business men upon the Hoover Committee in 1929, to the spectacle of a few wild senators trying to force the Red Cross to accept a $25,000,000 donation for a job the Red Cross knows will justify no more than $10,000,000 at most and which should be raised by popular subscription—have done much to keep the present business depression above board. Nor will we have true prosperity until we realize the fact that the American Government is one which is **of** and **by**, as well as **for** the people.

It is the purpose of Government, of course, to afford wise counsel to the various states, and in cases of emergency, provide such assistance as it can. And surely it is nothing more than straight common sense for the Government to undertake many of its badly needed public works—in times of a national unemployment emergency. The while our Congress is wasting precious time over such discussions as why and how a $25,000,000 "relief" fund should be administered, there are canals that await the digging, rivers which should be dredged, roads which need repair, highways which need extension, bridges which should be built, swamps that should be drained, post-offices that need erection, dams that should be established, reforestation which long since should have been undertaken, and countless other projects, which, if turned to and released at a time like the present would not only give employment to many thousands of workers but would put orders in factories of every kind and restore production to a basis far nearer to normal.

If we are to place dependence upon our Government, let us place **that** sort of dependence—a de-

pendence which is constructive and for which we must work, rather than for a free-for-all dole which is or would presently be utterly socialistic and unsound.

In commenting on the problem of unemployment, Mr. Daniel Willard, president of the Baltimore and Ohio Railway, said in the recent issue of the **"Executives Service Bulletin"** of the Metropolitan Life Insurance Company, "The problem itself is not a new one. We read of unemployment ills dating back more than 2,000 years. But old or new, I think we should do certain things which would be helpful in themselves." And then Mr. Willard outlines a suggested plan which, if set up and put into operation certainly "would be helpful." His suggested plan is:

"We should do all that properly may be done to make life on the farm more attractive and more satisfying to the end that a larger percentage of our people may wish to avail themselves of the advantages and opportunities enjoyed by the independent and prosperous farmer who lives on and cultivates his own soil.

The Government—State or Federal, or both—should collect, tabulate, and publish currently reliable information concerning the number of unemployed and the cause for such unemployment.

Efforts to develop our foreign trade should be encouraged, and in that way increase the consumptive demand for our products abroad.

The Government, State and Federal, should plan and execute its public works program in such a manner as to form a reserve against unemployment in times of depression.

Private industry should recognize the responsibility which properly rests upon it to stabilize employment within itself."

A sound, conservative, common-sense suggestion. The first paragraph carries a terrific problem—perhaps the heaviest of the five. Farming will become attractive during the next decade or two only to those who are in a position to farm on a large, business-like scale. The pretty, sentimental theories about the benefits and attractions of living on your own soil are for the most part passe—made so by the passing of the horse, the pump, the cistern, and the wash-basin outside the kitchen door. Farming, today, is a science, and business, a profession and a trade all wrapped into one, and the small capital man who operates 120 acres in the way his father or grandfather did is on his way out.

But the other suggestion made by Mr. Willard are nothing more than applied common sense, particularly that portion which pertains to the State and Federal Governments providing a reservoir of work to be released during time of emergency. That is the way in which we may safely, and constructively, place dependence upon the Government. . . . Not by hoping that the Treasury Department will pass a bonus bill, establish old age pensions, endow expectant mothers, then reduce our taxes simultaneously. Our Government should be one that is for, of and by the people.

Lessons in Paper Making

(Continued from page 1865)

have formation taking place during the whole period of immersion.

How can we do this? **By a thin consistency of stock.** The thinner the consistency of the mixed volume, the more **gradual** the **amount** of formation, and the **less the weight of paper per square inch.** Therefore, the more effective the available static head pressure.

We can easily visualize such a gradual formation taking place, the interstices of the sheet being gradually filled up by an induced flow and held in place, compact, by an adequate pressure.

Operating Hints

(1) Any foreign matter embedded in the wire mesh will prevent the flow of water through that portion of the mesh, and formation will not take place at that point.

(2) Keep the cylinder mold shower pipe cleaned out so that the water pressure effectively cleans the wire mesh over the whole area.

(3) Keep pitch spots and grease spots, hard dried stock, etc. cleaned off the wire; they make holes in the sheet.

(4) Never leave the weight of the couch rolls resting on the cylinders over the week-end shut-down. Such a weight will tend to flatten out the wire and close up the mesh.

(5) Keep the wire seams cleaned out.

(6) At the week-end wash-up, clean the **inside** of the molds thoroughly. If the backing wire gets filled up in spots, weak spots will show up in the sheet.

(7) Under the pressure of the couch rolls, the sheet tends to widen out at each successive mold. When putting on the deckles, allow for this. If the wet paper is squeezed against the deckle, the sheet will pluck because the water cannot pass through the wire mesh. Such plucking will cause breaks either at the press, on the dryers, or more frequently at the calenders.

With any given preparation of stock, the best machine operation to obtain the best formation is, thin consistency and adequate suction. If this sheet is not satisfactory and you cannot change the furnish or preparation, **slow down the machine and you will be then bringing into operation the fundamental principles we have herewith discussed.**

In the next article, we will deal with vat and vat circle construction, and why.

Studies of the underlying causes of industrial accidents reveal that the failure of employees to perform their work safely is due principally to a lack of leadership.—Industrial Engineering.

Seventh Annual Safety Contest

113 Mills Enrolled in The Paper Industry Contest to Close June 30

ENTRANT	MILL	LOCATION
Adams Bag Co.	Chagrin Falls	Ohio
Albemarle Paper Co.	Richmond	Virginia
Alton Boxboard & Paper Co.	Alton	Illinois
Bemis Bros. Bag Co.	Peoria	Illinois
Bird & Son, Inc.	East Walpole	Massachusetts
Bird & Son, Inc.	Phillipsdale	Rhode Island
Bird & Son, Inc.	Norwood	Massachusetts
Bird & Son, Inc.	Chicago	Illinois
Blandin Paper Co.	Grand Rapids	Minnesota
Brown Paper Mill Co., Inc.	Monroe	Louisiana
Bryant Paper Co.	Paper Div.	Kalamazoo, Mich.
Bryant Paper Co.	Imperial Div.	Kalamazoo, Mich.
Canada Power & Paper Corp.	Belgo Div.	Shawinigan Falls, Que.
Canada Power & Paper Corp.	Laurentide Div.	Grand Mere, Que., Can.
Canada Power & Paper Corp.	Wayagamack Div	Three Rivers, Que., Can.
Canada Power & Paper Corp.	Anglo-Canadian Div.	Limoilou, Que., Can.
Canada Power & Paper Corp.	Port Alfred Div.	Port Alfred, Que., Can.
Canada Power & Paper Corp.	St. Maurice Div.	Cap de la Madeleine, Can
Can. International Paper Co.	Three Rivers	P. Q., Can.
Can. International Paper Co.	Gatineau	P. Q., Can.
Can. International Paper Co.	Fibre Board Mill	Gatineau, Que., Can.
Champion Coated Paper Co.	Mill No. 1	Hamilton, Ohio
Champion Coated Paper Co.	Mill No. 2	Hamilton, Ohio
Champion Coated Paper Co.	Coating Mill	Hamilton, Ohio
Container Corp. of America	Sefton	Anderson, Ind.
Container Corp. of America	Charleston	West Virginia
Container Corp. of America	Ogden Div.	Chicago, Ill.
Container Corp. of America	Coated Board Div.	Chicago, Ill.
Container Corp. of America	35th St. Div.	Chicago, Ill
Container Corp. of America	Cincinnati	Ohio
Container Corp. of America	Cleveland	Ohio
Container Corp. of America	Circleville	Ohio
Container Corp. of America	Dixon Mills	Carthage, Ind.
Container Corp. of America	Fairmont	West Virginia
Container Corp. of America	Natick	Massachusetts
Container Corp. of America	Gibralter	N. Bergen, N. J.
Container Corp. of America	Manayunk	Philadelphia, Pa.
Continental Paper & Bag Corp.	Ashland	New Hampshire
Continental Paper & Bag Corp.	Rumford	Rumford, Maine
Consolidated Water Power & Paper Co.	Wisconsin Rapids	Wisconsin
Consolidated Water Power & Paper Co.	Biron	Wisconsin
Consolidated Water Power & Paper Co.	Stevens Point	Wisconsin
Consolidated Water Power & Paper Co.	Appleton	Wisconsin
Cornell Wood Products Co.	Cornell	Wisconsin
Crystal Tissue Co.	Middletown	Ohio
Dells Paper & Pulp Co.	Eau Claire	Wisconsin
Dill & Collins Co.	Delaware Mills	Philadelphia, Pa.
Escanaba Paper Co.	Escanaba	Michigan
Fibreboard Products, Inc.	Sumner	Washington
Finch, Pruyn & Co., Inc.	Glens Falls	New York
Fraser Paper, Ltd.	Madawaska	Maine
Gardner & Harvey Co.	Plant No. 1	Middletown, Ohio
Gardner & Harvey Co.	Plant No. 2	Middletown, Ohio
Gardner & Harvey Co.	Plant No. 3	Middletown, Ohio
Gardner & Harvey Co.	Plant No. 4	Middletown, Ohio
Hoberg Paper & Fibre Co.	Hoberg Div. "A"	Green Bay, Wis.
Hoberg Paper & Fibre Co.	Fibre Div. "B"	Green Bay, Wis.
Hollingsworth & Vose Co.	East Walpole	Massachusetts
Hollingsworth & Vose Co.	West Groton	Massachusetts
Hollingsworth & Whitney Co.	Gardiner	Maine
Hollingsworth & Whitney Co.	Madison	Maine
Hollingsworth & Whitney Co.	Waterville	Maine
Hummel Ross Fibre Corp.	Hopewell	Virginia
International Paper Co.	Fort Edward	New York
International Paper Co.	Hudson River	Palmer, N. Y.
International Paper Co.	Niagara Falls	New York
International Paper Co.	Otis	Chisholm, Maine
International Paper Co.	Riley	Maine
International Paper Co.	Livermore Falls	Maine
International Paper Co.	Piercefield	New York
International Paper Co.	Webster	Orono, Me.
Kimberly-Clark Corp.	Falls	Niagara Falls, N. Y.
Kimberly-Clark	Niagara	Niagara Wis.
Kimberly-Clark Corp.	Kimberly	Wisconsin
Kimberly-Clark Corp.	Neenah	Wisconsin
Kimberly-Clark Corp.	Lakeview	Neenah, Wis.
Kimberly-Clark Corp.	Atlas	Appleton, Wis.
Lowe Paper Co.	Ridgefield	New Jersey
Maine Seaboard Paper Co.	Bucksport	Maine
Marathon Paper Mills Co.	Rothschild	Wisconsin
Marathon Paper Mills Co.	Menasha	Wisconsin
Marathon Paper Mills Co.	Ashland	Wisconsin
Marinette & Menominee Paper Co.	Park	Marinette, Wis.
Mead Corporation	Chillicothe	Ohio
Mead Corporation	Kingsport	Tennessee
Mengel Company	Fibre Container	Louisville, Ky.
Nekoosa-Edwards Paper Co.	Port Edwards	Wisconsin
Nekoosa-Edwards Paper Co.	Nekoosa	Wisconsin
Northern Paper Mills	Green Bay	Wisconsin
Ohio Boxboard Co.	Rittman	Ohio
Ontonagon Fibre Co.	Ontonagon	Michican
Oxford Paper Co.	Rumford	Maine
Port Huron Sulphite & Paper Co.	Sulphite No. 1	Port Huron, Mich.
Port Huron Sulphite & Paper Co.	Paper No. 2	Port Huron, Mich.
Powell River Co., Ltd.	Powell River	B. C., Canada
Price Bros. & Co., Ltd.	Paper	Kenorami, Que., Can.
Price Bros. & Co., Ltd.	Paper	Riverbend, Que., Can.
Price Bros. & Co., Ltd.	Jonquiere Div.	Jonquiere, Que., Can.
Price Bros. & Co., Ltd.	Donacona	P. Q., Canada
Rhinelander Paper Co.	Rhinelander	Wis.
Rising Paper Co.	Housatonic	Massachusetts
St. Croix Paper Co.	Woodland	Maine
Southern Kraft Corp.	Camden	Arkansas
Spruce Falls Power & Paper Co., Ltd.	Kapuskasing	P. O., Canada
Strathmore Paper Co.	West Springfield	Massachusetts
Strathmore Paper Co.	Worcenoco	Massachusetts
Tonawanda Paper Co., Inc.	North Tonawanda	New York
United States Envelope Co.	Morgan Paper Div.	Lititz, Pa.
United States Gypsum Co.	Oakfield	New York
United States Gypsum Co.	Gypsum	Ohio
United States Gypsum Co.	N. Kansas City	Missouri
Upson Company	Lockport	New York
Wardlow-Thomas Paper Co.	Middletown	Ohio

Ogden Division Wins Container Corp. Contest

Both the Paper-Mill and the Box Plant 1930 Accident Prevention Contests of the Container Corporation of America were captured by the Ogden Division at Chicago, Illinois. The paper-mill department at Ogden Division finished the year without incurring a single lost time injury and the box plant department won its first place with a record of one lost time injury. It is of interest to note that this division of the Container Corporation passed its 365th consecutive day without lost time injury on January 22, 1931, just a few man hours short of 1,000,000.

A feature of the Container Corporation accident prevention program, as directed from the Chicago general offices by Arthur Murray, director of safety-welfare, is that intricate safety committee organizations are unnecessary and the general run of theatricals and temporary but expensive safety stimulants are kept in reserve for emergency use only. The contests are never permitted to be the objective of the safety activities. Rather are they utilized as a choice advertising media for expressing the difficult but necessary quotients of "comparative costs." To promote the cost element and de-emphasize the Contests, as such, a very rigid definition of a lost time injury is in force. It is recognized that whenever injuries cause a shifting of personnel, at times without absenteeism, there will be sufficient economic waste to put the charge on the records of the supervisor responsible for the existence of that erratic condition.

The talk of safety in terms of generalities is constantly being supplanted by the discussion of errors and accident conditions in terms of paper manufacturing and containers manufacturing. The accident prevention focus of the executives and their supervisory forces has been directed towards getting a greater uniformity among foremen on personnel affairs; to recognize that the combined judgment of many supervisors, which contemplates many man years of experience, must be better than the individual judgment and practices of a single department head.

The management at the Container Corporation, Ogden Division, has made it attractive for their foremen to enforce known safe practices. With suitable employee selection control; a well-functioning system of error reporting and investigation, and recording; and precision analysis of specific occupations for the uniform instruction of workers as to emergency conditions and the tools, safeguards, safe practices and method of inspection and maintenance required; there is little wonder that safety is just paper and container manufacturing in that organization.

The National Safety Council is now publishing a new 16-page magazine for the commercial driver. It is called "The Safe Driver" and its size and editorial contents will follow the style of "The Safe Worker" which has proven so popular. Copies may be obtained from the Council, 20 N. Wacker Drive, Chicago.

Annual Meeting of the Canadian Pulp and Paper Association

Technical, Woodlands and Annual Business Meeting Covered in Three Days in Montreal

THE Canadian Pulp and Paper Association held its annual meeting in Montreal on January 28, 29 and 30. The meeting differed from those of preceding years in that only one day was taken up by the Technical Section meeting and one day by the Woodlands Section meeting; moreover, in view of the present position of the industry, it was considered advisable to omit all social functions, which had been regular features of these meetings since the Association was founded.

TECHNICAL SECTION MEETING

The Wednesday sessions were taken up by the Technical Section meeting. When the Association had finished building and equipping the Pulp and Paper Research Institute, two years ago, it turned to the Technical Section and said: "Gentlemen, we have provided you with all the facilities that you have asked of us to enable you to work for the betterment and development of the industry. It is up to you to formulate a suitable program and to carry it out." This year's meeting may be taken as giving an answer, for, apart from the three papers submitted in competition for the Weldon Medal, the proceedings were devoted exclusively to the work which has been planned and is being carried out at the Research Institute.

Reports of Committees

After President Crabtree, of the parent Association, had opened the meeting with a few appropriate words of welcome and encouragement, Prof. H. O. Keay, of the Laurentide Division of Canada Power and Paper Corporation, presented the report of the Committee on Chemical and Physical Standards.

Chemical and Physical Standards

This was in the form of a review of the present methods of preparing sheets for testing the initial strength of paper pulp prevailing in North America and in Europe, discussing in turn the disintegration of the pulp, the formation of the sheet, couching, pressing, drying and conditioning. The Committee considered that the best means yet devised for the formation of the test sheet was the British sheet machine; that couching of the sheet should be done by means which eliminate the influence of the operator, which is probably best obtained by the use of a couch plate together with a roll of fixed weight as adopted by the British Committee on Evaluation of Paper Pulp; that the work of Cameron and his co-workers had shown that 200 pounds per square inch was most satisfactory for pressing the sheets; and that the procedure of the British Association for drying the sheets, though more elaborate, was justified because it eliminated the uncertainty which resulted from shrinkage when the sheet was not dried under tension. It was felt, however, that as yet insufficient data had been accumulated to warrant definite recommendations.

Sulphate, Soda and Kraft

The report of the Committee on Sulphate Soda and Kraft, which was presented by George H. Tomlinson, of the Howard Smith Paper Mills, drew attention to the menace to the Canadian soda and kraft industry of the cheap unbleached kraft now being produced in the Southern States, and suggested that the production of highly specialized products may become the only pulp-export possibility of this branch of the Canadian pulp industry. Experiments carried out to date have given very promising results: by means of proper temperature and concentration control, the viscosity and alpha-cellulose content of the resulting product is equivalent to that of the best sulphite; coniferous pulps of strength quality equal to that of the best kraft have been produced by the use of soda liquor, and aspen pulps of low lignin content, good strength and high viscosity, combined with exceptional yield, have been produced in the same way.

Review of Current Investigations

In presenting a "Review of Current Investigations," E. Parke Cameron, director of the Pulp and Paper Division of the Forest Products Laboratories of Canada, gave much interesting information and showed that the various problems are not only being studied by known and approved methods, but that entirely new methods are being developed at the Laboratories.

Testing Strength of Wet Pulp—A characteristic of pulps of particular application to the operation of the wet end of the paper machine is that of wet strength, which quality is distinctly different from dry strength as usually defined. The accurate determination of wet strength is extremely difficult due to a number of factors, the most important of which are perhaps the variation in moisture content during the testing and the extreme delicacy necessary in handling the saturated test sheets. A modified tensile tester designed by the Abitibi Co. and loaned for the purpose was first thoroughly tried out; but satisfactory duplication could not be secured with the instrument, and all modifications introduced into the original design failed to materially rectify this fault, there being over 15 per cent difference in the best duplicate results obtained. Application of the bursting principle, using suction rather than pressure and applying the test to the sheet while still retained on the forming wire of the sheet machine, has yielded most encouraging results. Duplication of results to an even greater degree of accuracy than obtained by the ordinary Mullen test have been secured regularly, but the instrument has not been used sufficiently to warrant any definition of the value of the test being made as yet. The most striking feature of the test is, perhaps, the small but consistent difference obtained between two such dissimilar pulps as groundwood and sulphite. It is anticipated that the utility of this test will be fully demonstrated by further work. In view of the report of the Committee on Chemical and Physical Standards, it is interesting to note that the design of the British sheet machine lends itself much better to this test than that of the Canadian machine.

Progress in Measuring Freeness—The Canadian standard freeness tester is still gaining in favor, and last year 26 instruments were calibrated and supplied to the industry, making a total of 136 instruments in use in seven different countries. A simple means of checking the calibration of the tester has been devised at the laboratories, thus making it possible for each user to make sure that his instrument is properly calibrated at all times.

Freeness, however, is only one specific method of measuring the rate of drainage of water from a pulp suspension, and the latter depends on a large number of factors, many of which represent separate characteristics of the pulp. It is hoped that these further characteristics may be isolated and defined with precision by modifications of existing apparatus. Here again the British sheet machine is well adapted, and definite progress has been made by its use.

Light Absorption as Means to Define Groundwood Quality—The heterogeneous nature of the pulp fibers of which groundwood is composed makes it extremely difficult to accurately define groundwood quality. Screen analysis, as originally in-

itiated by the Research Department of the Abitibi Power and Paper Co., seems a step in the right direction; but the weakness of the method lies in the 30 to 40 per cent of material passing through the finest screen. Study of this material by means based on light absorption, at present under way by Dr. Maass of McGill University, appears to furnish a promising line of attack of this problem. This same method is also being developed as a possible means of rapidly determining consistencies.

Photometric Analysis of Color—The accurate analysis of color by photometric means yields a graphical record of the true color of the sample if the instrument is properly designed; but, on the other hand, it is not the true color that one sees when ordinarily examining a sample, but rather an indication of color by reflection, and the indication of this characteristic is liable to considerable variation due to such factors as the source of light, the surface of the sample and, in particular, the personal equation of the operator. In an attempt to develop a method of estimating color that is simple, quick, accurate, and as free from personal error as possible, the Hess-Ives tintometer has been modified by using a system of multiple reflection; the accuracy has thus been definitely increased for all cases where the readings are higher than 70 on the Hess-Ives scale.

Improvement in Laboratory Beater Design—The laboratory beaters at present available for determining the beaten strength of pulp, while satisfactory in the main, are far from perfect. The pebble and ball mills are much more definite in their reproduction of conditions from one test to another, but impart a type of treatment altogether different from that given the pulp in commercial operation. A systematic study of the test is being undertaken at the Laboratories, in the course of which the various types of apparatus and their respective actions will be directly compared. In this connection, a new design of laboratory beater has been developed and is at present being fabricated, in which an attempt has been made to overcome the disadvantages of the present types, particularly as regards the setting of the roll, the circulation of the stock, and so-called "dead spots."

Compressibility is a characteristic of pulp which possibly has a great effect on the characteristics of the finished paper. It will be indicated by the degree to which a pulp mat will pack when exposed to a definite head of water, and may be determined by the resistance to flow offered by the mat. It is suggested that the ratio of the values to resistance of flow found under two different heads be taken as the "relative compressibility ratio," thus constituting a new measure of pulp quality. The usefulness of this new value is now being investigated.

Hydration—The term "hydration" which is generally used to describe the change undergone by pulp on beating, infers that water enters into some form of union with the cellulose of the fibers, and the common understanding of hydration in reference to paper stock is probably the formation of a mucilaginous material by this union, which retards the drainage of water when wet and forms a strongly adhesive bond when dry. As a result of the work of W. B. Campbell (which was reported in Vol. 2 of **Research Notes**) it is hard to hold to the old idea of hydration; and a new theory has been put forward according to which the characteristics developed by beating are associated with the structure of the fiber, particularly when its external surface has become increased by mechanical abrasion. The technic developed for this work has wide application in the study of fiber characteristics and will be applied to such problems as the difference in quality between dry and slush pulps, the effect of various methods of drying, the effect of "hydrating" agents, and similar studies.

Hydrogen-Ion Measurement—The usual methods of measuring hydrogen-ion concentration were found useless for the determination of the pH of hypochlorite solutions; and yet this is of very great importance in studying the fundamentals of the bleaching process. Using a glass electrode, a technic was evolved, which is a further development of the original work of MacInnes and Dole, which was found very satisfactory and suitable for the work projected in the study of the bleaching process.

For the control estimation of active alkali in soda cooking liquors during the course of the cook, a conductivity apparatus, based on a system devised by Treadwell and described in **Helvetica Chimica Acta** in 1925, has been developed and is now in shape to be tried out in the laboratory.

Investigation of Paper Surface Qualities—In order to define paper surface from the standpoint of its printing qualities, a tester has been devised and is now being built at the Laboratories. The principle of the instrument consists in applying a uniformly distributed coating of carbon black to the surface of the paper under accurately standardized conditions. In this connection, Mr. Stadler stated that he had experimented along these lines nearly 20 years ago, and found that the very first difficulty lay in the standardization of the carbon paper used for impressing the coating of carbon on the sample. He suggested that satisfactory results along these lines could be obtained only by using a highly polished metal surface for applying the coating to the sample.

Reasoning by analogy from the behavior of a sponge which is saturated with water when compressed and is then suddenly released, it seems reasonable to suppose that resilience, though but little considered in the past, has a considerable effect on the printing qualities of paper. An apparatus has therefore been devised to measure this characteristic, and it is hoped that its application will yield results of interest and value.

Major Process Investigations Under Way

The major process investigations at present under way at the Laboratories relate to alkaline cooking, wood grinding, bleaching, sulphite cooking and rod-milling.

Alkaline Cooking—The alkaline process studies were initiated with a view to making these processes suitable for the production of pulps for the manufacture of rayon. Early work confirmed the opinion that, when carried out under the conditions generally used in the industry at the present time, the alkaline processes cannot yield a pulp suitable for rayon manufacture, the concentration of alkali used being the predominant factor at fault, particularly when considered in respect to the usual temperatures of cooking. It was found that, in order to retain the original structure of the cellulose, low concentrations of alkali must be used, and the temperature of cooking must be somewhat modified. Cooks carried out using large volumes of weak liquor yielded pulps giving satisfactory evidence of having retained the characteristics desirable for rayon purposes. In order to overcome the necessity of the large liquor-chip ratio required for low-concentration cooking, the control of reagent concentration throughout the course of the cook was developed and perfected, and its application has already yielded some most interesting results. For instance, it has proved possible to vary the characteristics of the pulps produced from those of typical soda pulp to those closely resembling sulphite; yields are apparently somewhat greater and alkali consumption somewhat less than in normal soda-process operation; pulp characteristics can be varied over wide limits with a fairly definite development of those properties desired in any specific grade of product.

The groundwood investigations were only briefly touched upon by Mr. Cameron, as they were described in greater detail by Dr. H. W. Johnston in the afternoon session.

Bleaching Studies—The bleaching studies, which have been started, will comprise a systematic investigation of the fundamentals of the bleaching process. The main body of the investigation is concerned primarily with the physical chemistry of the hypochlorite process, and the effect of conditions on: (1) the rate of reduction of hypochlorite by the constituents of unbleached pulp and (2) the proportion of the reduced hypochlorite utilized in the destruction of colored compounds, will be considered. The general plan of attack of the problem will be as follows: (1) determination of the effects of hypochlorite concentration, temperature and hydrogen-ion concentration on the rate of reduction of hypochlorite and on the amount of bleach required to give a definite color under conditions in which the effect of products of bleaching is minimized; (2) repetition of suitable portions of the work using a system in which the products of bleaching are retained in contact with the pulp; (3) correlation of the differ-

ences in bleach requirements in the two systems with the results of independent experiments on the bleachability at high consistency and in two-stage processes, and on the reduction of hypochlorites by carbohydrates. It was first necessary to carry out a number of preliminary investigations to develop satisfactory methods of analysis, to design and construct the necessary apparatus, and to perfect a technic of operation. This work yielded the methods of color measurement and of determination of the hydrogen-ion concentration of bleach liquors already described, the application of the viscosity test to define over-bleaching, and the development of a satisfactory apparatus for the study of the physico-chemical relationships defined in the main body of the work.

The Sulphite Process—Up to the present, the work on the sulphite process has been largely concerned with the cooking liquor, and more specifically with the properties of solutions of sulphur dioxide gas at temperatures approximating those used in the sulphite process. The data obtained from this work has proved of considerable value in practice in working out improved operating procedures for sulphite mills. The continuation of this work, which is being carried out at McGill University, will deal with the effect of various bases on the relations already established. Further sulphite-process studies will be carried out in a five-pound digester, and will be concerned with the effects of temperature and time of cooking on yield and quality of pulp.

Utilization of the Rod Mill—Considerable interest has been aroused in the possible utilization of the rod mill as an economical means of beating and refining. As the Laboratories are equipped with a particularly fine installation of this apparatus, a thorough study of its operation is to be undertaken, from which it is anticipated definite data in respect to its efficiency for various beating and refining purposes will be developed. The changes developed in a pulp by rod-milling are, to a certain extent, specific to this type of processing. By analysis of the pulps during processing, these changes will be accurately followed. The economics of the study will be obtained from accurate power records showing the power required to produce predetermined values of screen fractionation, strength, freeness, etc., and the relation of these values to the characteristics desired in the final product.

The Resins of Jack Pine

In the absence of Dr. John B. Phillips, his paper on "The Resins of Jack Pine" was read by Prof. Hibbert. It gives the result of a tedious and painstaking study of the composition of the resins present in green jack pine and in seasoned jack pine. The resins were found to consist of resin acids, fatty acids and unsaponifiable. The fatty constituents, to which are generally attributed so-called "pitch" troubles in pulp and paper-mills, are made up largely of acids and glycerides of the unsaturated type (including large proportions of oleic and linolic acids and traces of linolenic acid). The fats of seasoned wood were found to contain a high percentage of oxidized fatty acids, probably derived from the unsaturated acids, which oxidize and polymerize very readily. These transformations involve a change from oily, sticky material, to more inert, solid products.

As it is generally agreed that pitch trouble is brought about mainly by flocculation and coagulation of resin particles, it is suggested that the possibilities of triethanolamine as an agent for removing the troublesome resin particles, or rendering them harmless, should be investigated. The solubility of its salts and the high emulsifying qualities of the soaps which it forms with oleic and linolic acids offer strong indication that this substance, in the presence of the fatty and resin acid particles, may be capable of removing the latter substances by forming soluble compounds with them, or causing an emulsion to be formed, so that the resinous matter would pass out with the white water.

Mr. Kellogg, of the News Print Service Bureau stated that Dr. Herty, in the course of an investigation on slash pine, had obtained some very interesting, but somewhat unexpected results. It was found that when the logs were allowed to season, pitch trouble increased rather than decreased; but on the other hand, if the felled trees were allowed to lay on the ground for sometime without cutting off the branches, the resin content decreased considerably, presumably through evaporation of the resin through the foliage.

Dr. Bates, of Price Bros., related that he had tried out the use of triethanolamine on one of the paper machines in his mill; and the results were rather disastrous, as it apparently loosened up a lot of pitch that up to that time had been quite harmless.

Water Supply for High Pressure Boilers

The afternoon session was opened with a paper by Chas. R. Hazen, of the Milton Hersey Co., on Water Supply for High Pressure Boilers. Mr. Hazen first dealt with the formation and effects of scale and with the factors which favor corrosion. He then outlined the usual processes of water softening (evaporating the make-up water, cold and hot lime and soda ash treatment, zeolite softening, sodium aluminate treatment), showing that they do not furnish a water suitable for the very exacting requirements of high-pressure boilers. The prime essential of such boilers is clean evaporating surfaces, and this can be obtained by the properly controlled addition of monosodium phosphate, either in the boiler or before feeding, and with or without a preliminary softening treatment according to the nature of the raw water.

Groundwood Studies

Dr. H. Wyatt Johnston, in his paper on Groundwood Studies, presented an exhaustive analysis of the program which has been mapped out for investigation at the Forest Products Laboratories in connection with the manufacture of groundwood. The problem is being considered from three different standpoints: (1) definition of pulp quality, (2) definition of stone quality, and (3) process variables as factors of operation. Each one of these points was discussed in turn, indicating the value of the various tests for practical purposes, showing the function and effects of size and shape of grit and of strength of bond of pulp stones, and reviewing the results and opinions of previous investigators on the effects of stone surface, peripheral speed, pressure of the wood against the stone, temperature of grinding and white water.

The various tests for defining and evaluating pulp quality have been examined at the Laboratories and they are now being studied in operation with a view to defining as closely as possible the conditions under which they work best. Several stones of different grades have been obtained; work is now in progress, and an appropriation has been set aside for a laboratory-scale machine with which to test small samples of different abrasives for grinding wood. An Empire medium-grit sandstone has been mounted on the grinder in the experimental mill of the Pulp and Paper Research Institute, and runs have been started to determine the relation of pattern to pulp yield and quality. Appearance, freeness, sedimentation and wet and dry strengths are determined at 20-minute intervals on average samples collected over the 20-minute periods. Each run will last about seven to eight hours and will produce about a ton of pulp. The production, power, etc., are also determined every 20 minutes, based on average readings over that period. Some idea of the thoroughness of this portion of the general investigation may be gathered from the fact that a staff of about ten is kept busy all the time, five testing and five operating the grinder. A run is made every three days, and the cost of each run, including wood and power, is in the neighborhood of $200.

British vs. Canadian Methods of Forming Test Sheets

In the last paper on the agenda, W. E. Adlington presented a Comparison of the British and Canadian Methods of Forming Test Sheets. Test sheets were prepared on the Canadian sheet machine and on the British sheet machine at the Forest Products Laboratories and in the laboratories of the Howard Smith Paper Mills and Price Bros. and Co. Groundwood, unbleached sulphite, kraft and bleached soda pulps were used, both unbeaten and beaten, ten sheets being made from each sample. The finished sheets were all sent to the Forest Products Laboratories at Montreal, where they were thoroughly conditioned and tested for ream weight, Mullen bursting strength, Elmendorf tearing resistance, Schopper tensile strength and Schopper folding endurance, under standard con-

ditions of 65 per cent relative humidity and 70° Fahr. From a careful analysis of the data thus obtained it was found that:

(1) Duplication of results is possible.
(2) The difference between the results obtained on sheets prepared on the Canadian machine and on the British machine are within the limits of error, so that duplication between the methods is possible.
(3) The English machines agree amongst themselves.
(4) There is no necessity for a conversion factor from the results obtained with one type of machine to those obtained on the other.

Election of Officers

The Technical Section was brought to a close by the election of officers. D. L. McLeod, of the Ontario Paper Co., Thorold, Ont., succeeds R. A. McInnis of Canada Power and Paper Corp. as chairman. B. de B. Millidge, of Howard Smith Paper Mills and F. L. Mitchell, of Abitibi Power and Paper Co., were elected as councillors to serve for three years. Owing to the resignation of H. J. Buncke, who still had two years to hold office as councillor, and to the appointment of O. F. Bryant as secretary of the Section, it was also necessary to name two councillors to serve for two years; and R. A. McInnis and A. A. MacDiamid, of Price Bros., were elected to fill these vacancies.

WOODLANDS SECTION MEETING

The morning session of the Woodlands Section meeting was open to members only, and was devoted to the presentation and discussion of three papers:

Cruising and Its Use in Logging, by W. Kisbaugh, Abitibi Power and Paper Co.

Floatability of Pulpwood and Sinkage, by A. Koroleff, Secretary of the Woodlands Section.

Feeding Men, by J. E. Caron, Price Bros. and Co.

Following the custom established at previous meetings, the members of the Technical Section were invited to attend the afternoon session.

This was opened by the election of officers. J. D. Gilmour, of Anglo-Canadian Pulp and Paper Mills, was re-elected chairman for another term. C. B. Davis, of Abitibi, was elected vice-chairman, succeeding C. W. Alden, of Oxford Paper, who had resigned owing to the closing down of the Canadian mill (Nashwaak Pulp and Paper Co.) with which he was connected. The councillors for 1931 are: W. A. Delahey, Canadian International Paper Co. (re-elected); T. W. Earle, St. Lawrence Paper Mills; M. R. Kane, Price Bros. (re-elected); H. Kennedy, E. B. Eddy Co. (re-elected), and H. G. Schanche, Abitibi Power and Paper Co.

In a discussion of the Rate of Deterioration of Pulpwood in the Woods, W. A. E. Pepler, of Canadian International Paper Co., dealt with the various agents causing deterioration and with the controlling factors affecting deterioration. Though pertinent data on the subject are all too meager, Mr. Pepler presented charts prepared from such data as are available and drew graphs to show how the data, once accumulated, could be utilized to arrive at an estimate of the amount of timber that could be salvaged under given conditions. This is of very great importance, for, in salvage operations, up to 50 per cent of the stand may be saved or lost, depending on whether the management has available information on the rate of deterioration under the various sets of conditions occurring on the tract. The rate is dependent on definite factors, and the general effect of these factors may be predicted and expressed in amounts of merchantable timber which can be salvaged any given number of years after the fire or windfall. This can be done without any extra field work other than a superficial examination of the area to check the predictions.

Dr. Boyce on Trends in Pulpwood Production

Dr. C. W. Boyce, secretary of the American Paper and Pulp Association, next gave a masterly presentation of Trends in Pulpwood Production, in the course of which he carefully analyzed past developments and present conditions of the world's paper, pulp and pulpwood industries in an endeavor to arrive at future trends. In view of Dr. Boyce's position, which enables him to speak with unusual authority, his conclusions are of more than passing interest:

"It would seem that Canadian companies will come through that can keep their wood costs below $10.00 a cord, and that similar companies in the United States can carry on with $12.00 wood. These figures may be a trifle low. I do not believe that any newsprint company can survive with wood costs much greater. Newsprint is no game for such companies; they should shift to grades that permit a higher wood realization. But that is more easily said than done, for present world tariffs and overproduction are powerful marketing elements to overcome.

"Of all the trends in the paper industry, the most important today is that of wood costs. It points downward. It has not yet slackened its downward gait, either in North America or in Europe. It is bound to go lower. What place each company or each country will have in the vast future that lies ahead in paper manufacture will depend upon the ability of each to keep pace with the trend of wood prices. This is the trend to watch, to watch with wide open eyes, to watch objectively. There can be no security in the assumption that tradition will hold, for mass production knows no traditions, it only knows trends."

Seasonal vs. Year-Around Logging

In the last paper on the program, A. Koroleff, Secretary of the Woodlands Section, compared Seasonal versus Year-Around Logging, bringing out the relative merits and disadvantages of the two under the headings: fire danger, flies, swamps, susceptibility of wood to decay, scaling and culling, yarding and hauling, sylviculture, peeling, availability of labor, output per day, camps, weight of wood, land transportation, water transportation and sinkage loss, more complete utilization of the wood, efficiency and stability of labor, and finally costs. It was quite apparent, from the discussion that ensued, that the members considered that the decisive factor in deciding of the adoption of one or the other system was the cost of operations; and it seemed to be the concensus of opinion that, as far as Eastern Canadian conditions were concerned, winter-logging costs were generally lower than summer-logging costs, though there might be exceptional cases where summer-logging might be equally or more profitable.

At the close of the meeting Mr. Koroleff showed some very interesting moving pictures of logging operations which he took last year, mostly in eastern and western Canada, but also in the United States and Newfoundland.

ANNUAL BUSINESS MEETING

The business transacted at the Eighteenth Annual Meeting of the Canadian Pulp and Paper Association, which was held on Friday morning, was mainly of a routine character. The industry and the Association suffered exceptionally severe losses during the past year, and a resolution was moved expressing regret at the death of Mr. Warren Curtis, president of the Ontario Paper Co.; Mr. P. B. Wilson, chairman of the Newsprint Institute of Canada and a former president of the Association; Mr. J. F. Booth, of J. R. Booth, Ltd.; Mr. Edward Beck, secretary and manager of the Association for many years; Mr. J. A. Bothwell, president of the Brompton Pulp and Paper Co. and a former president of the Association; Dr. D. F. Brooks and Mr. M. J. Scanlon, of the Powell River Co., and Mr. Angus McLean, president of the Canadian Chamber of Commerce and formerly president of the Bathurst Power and Paper Co., and extending the most sincere sympathy of the Association to those who were bereaved.

Mr. Harold Crabtree, of Howard Smith Paper Mills, was re-elected president of the Association for a second term. He announced that Mr. A. E. Cadman had been appointed secretary and manager of the Association, which position he had filled temporarily since the death of Mr. Beck.

The Bailey Meter Company, Cleveland, Ohio, announces the appointment of P. S. Dickey as research engineer. Mr. Dickey is a graduate in mechanical engineering of Purdue University and during the past few years has been specializing on automatic combustion control problems for the Bailey Meter Co.

Fifty Years a Paper Maker

Recognition Given Michael J. Redmond Upon Completion of Half a Century of Continuous Service with Kalamazoo Paper Company

TO have served one's employer faithfully for half a century is an unusual experience for any man and a very uncommon occurrence in any organization, but in an industry where workers boast of their various connections, to find one who has served one company continuously for a period of 50 years, is a marvel of loyalty and bespeaks a faith in that person by his employers well worth noting.

In Kalamazoo, Michigan lives a man with that reputation. His name is Michael Redmond, but he is known among his host of friends and acquaintances as Mike.

Mike's parents came to America from Ireland in 1861, stopping for a short time in New York state. They later settled on a farm near Hillsdale, Mich., where Mike was born December 4, 1865. There were several other children in the family, and for the first 15 years of his life, this Irish lad lived an uneventful life on the Milham farm south of Kalamazoo, where the family moved when Mike was but a small boy.

During an interview with THE PAPER INDUSTRY'S correspondent, Mike ventured to admit that one of the handicaps he has had in life was the fact that he was not born in a log cabin, his father being a thrifty farmer who provided for his family a good frame house, while most of the farmers around there lived in log cabins.

In 1880, the father gave up farm life and took a job with the Kalamazoo Paper Company, which at that time occupied the property now the Monarch Division of Allied Paper Mills, and in February of the following year, young Michael made his entry into the business of papermaking. His job was that of screen boy at the munificient pay of 50 cents per day. Speaking of this Mike said "I thought that was pretty good pay then, but I wonder what the young fellows just starting nowadays would say if I offered them that amount of money?"

It took this 15-year-old boy just seven years to work up to Machine Tender. After running a machine for seven years, Mike went over to the Botsford Paper Co., located east of Kalamazoo and about a mile out of town. He stayed there a year and a half which experience proved a profitable asset to him and the Kalamazoo Paper Co. Mike then went back to the Kalamazoo mill where he ran a machine again until December, 1898, when Fred M. Hodge picked him for superintendent. "Do you know," Mike said, "I have worked under but two managers in my 50 years, except the short time I was at the Botsford mill" and that time cannot count against him because this same mill later became the property of the Kalamazoo Paper Company.

Mike contemplated the live end of his cigar for a minute probably thinking of his beginning as a super. "Mr. S. A. Gibson," he said "was president and general manager when I started with the Kalamazoo mill and he was a peach of a fellow, well-liked by all the men. When he first came to Kalamazoo he worked as a millwright and later became president of the company. He knew how things should be done and many times have I seen him come out from the office in one of those stiff front shirts all snowy white, and in a little while you would see him going back, the shirt covered with grease spots. He not only told the men what he wanted done but showed them how to do it.

"Mr. Hodge is a fine man too," Mike went on "everything has to be just so, but that's just good business and I wouldn't want it any other way myself. He was the one who picked me off the machine and made me a superintendent. Mr. Gibson had been very feeble for a long time and Mr. Hodge had been doing all the manager's work. It was in December that he made me superintendent and the next month the Board of Directors officially made him the president and manager of the company."

Noah Bryant, one of the organizers of the Bardeen Paper Co. of Otsego and the partner of Frank Milham in the organization of the Bryant Paper Co., was superintendent at the Kalamazoo Paper Mill when Mike Redmond started work. When Bryant left for Otsego, he was succeeded by Mr. Wilmont who was in turn succeeded by Redmond and, as Mike says "all of my training was under two men, Noah Bryant and Mr. Wilmont, whose first name I cannot recall just now, who were very good teachers and deserve a lot of credit for any success I have had."

The next year after Redmond was made superintendent, the Kalamazoo Paper Company purchased the property of the Wolverine Paper Co. which had succeeded the Botsford Paper Co. The mill was idle at the time of purchase, which had been made largely at the instigation of the new super who had worked in the mill and knew just what was there. For a time the company continued to operate the old mill but Mike was transferred to the new acquisition which was designated as mill No. 2. Later a new mill was built on this property and the old property sold.

Records seem to be the rule in Mike Redmond's life. A charter member of the Superintendents Association, without an absence from the annual meeting since the organization of the association is a record which cannot be beaten, and is probably unequalled. Speaking of conventions, Mike said "I always got a lot out of those conventions, both in the meetings and on the outside. If their papers are a little too technical or the speaker's language is a little over your head, you can always corner him after the meeting and those fellows are always ready to explain any points you didn't get."

In 1921 the company made Mike general superintendent over its five mills. Up to this time he had presided over the No. 2 mill and the newly built mills Nos. 1, 3, 4 and 5, each of which had its own super. Since becoming general superintendent, it has been Mike's policy to fill all positions by promotion, if at all possible.

Upon being questioned as to outstanding events in his life, Mike responded "There have really been no outstanding events in my life. The making of paper is more or less eventless, but since 1898 some great advancements in papermaking have been made without much ado over them. At the old No. 1 mill where I first started, we had two machines, one 60 inch and the other 70 inch. Each machine had one 600-pound beater and we used to make from 500 to 700 pounds per hour on each one. We now have six machines ranging from 90 inches to 168 inches, with a production of 12,500 pounds per hour."

When the Western Board and Paper Company was organized, Mike was one of the founders and was made treasurer and a member of the board of directors. "I don't know why they made me treasurer," he said, "there's nothing to do only sign a paper once in a while."

Mike's cigar was getting short. He may have been anxious to close the interview but he couldn't help philosophizing a little. "You know, this old world isn't so big after all. A couple of years ago my wife and I were going to California, and just after we left Chicago I went out on the observation platform for a smoke and as I sat down, I heard some one say, "Well! look who's here," and I found John Henderson of THE PAPER INDUSTRY sitting next to me. Then while we were driving around with my brother in California to visit some orange groves, some one in an old Ford kept yelling at us and finally caught up with us. It was a young fellow who used to work for me and was out there running a machine to make orange wrappers. Another day, we walked into a hotel for dinner and whom should I run into but my old friend, L. D. Post, of The Paper Mill."

Mike Redmond was 65 years old last December but he is young in appearance and actions. He is good for many years to come because he has been moderate in his habits, and never misses a day at the mill where he is on the go all the time. As for retiring, he hasn't even thought of such a thing. If Mike got away from the whir and hum of the jordan he would be lonesome and unhappy. Mike loves his work and all of his workers love him. I have heard many people say complimentary things about him but never a thing against the man.

Testimonial Banquet

In recognition of his completion of 50 years of service with the Kalamazoo Paper Company, some 350 old and new friends of Mike Redmond gathered in the Masonic Temple banquet hall, in Kalamazoo, on the evening of February 7.

C. J. McMahon, chairman of the committee in charge, gave a short address, relating the outstanding points in Mr. Redmond's life, and introduced as toastmaster of the evening, Fred M. Hodge, president and general manager of the Kalamazoo Paper Company and for 44 years associated with Mr. Redmond. In his tribute to Mike, Mr. Hodge said that in the 44 years of their association not a cloud had darkened the sunshine of their friendship.

The speakers in the order of their introduction were: Rev. Father John Hackett, R. A. Hayward, of the Kalamazoo Vegetable Parchment Co.; Robert L. Eminger, National Secretary of the Superintendents Association; Felix Pagenstecher, president of the Bryant Paper Co.; Fred Boyce, Wausua, Wis., first president of the American Paper and Pulp Mill Superintendents Association, all of whom paid tribute to the guest of honor. Reverend Hackett attributed the success of Mr. Redmond to his character, perseverance and common sense, stating that "he is not a man who has allowed so-called ideals to befuddle his ideas."

Mr. Hayward brought greetings from J. Kindleberger who could not be present because of illness, but hoped to be able to be present at the 75th anniversary. Mr. Hayward also extended greetings from the Technical Association of the Pulp and Paper Industry in the name of Max Krimmel, its president.

Mr. Eminger extended greetings, and brought congratulations from Carl Magnus, president of the Superintendents Association.

Mr. Pagenstecher spoke highly of the plan to honor the efforts of deserving ones while they are still with us. He attributed Mike's success to his fairness and thoroughness, and recalled a number of incidents when they worked together years ago. He also complimented him on being a diplomat, with the ability to smooth over difficulties to the satisfaction of all concerned.

The importance of the superintendent as a contact man between the management and workers was brought out by Fred Boyce in a few well chosen remarks.

The next speaker to be introduced was S. R. Light, Mayor of Kalamazoo, who spoke of the value of good citizens, and praised Mr. Redmond's efforts as a loyal citizen and his generous support of many civic enterprises. At the close of his remarks, he presented to Mr. Redmond as a token of the esteem of those present, a solid silver service and chest of silver.

Mike was very much touched by this token of appreciation. He responded graciously to the presentation and gave much credit for his success to Noah Bryant and F. M. Hodge, who, as he said, "must have had a lot of faith in me to pick me off the machine and make me a superintendent." He remarked that while some feel it desirable to obtain a varied experience by changing jobs, he had gained this experience by his contacts with friends in the Superintendents Association. He closed his response with the statement that "This is the happiest day of my life."

Webster H. Pearce, State Superintendent of Public Instruction, brought greetings from the Governor of the State, who sent word to "tell Redmond that I would rather have a record like this than to be Governor of Michigan."

In closing, Toastmaster McMahon introduced the following old timers by name and giving the number of years each had been connected with papermaking: Martin Manion, 61 years; Sam Simpson and Henry Randall, 60 years; E. H. Gilman and C. J. McClellen, 54 years; John Parant, 49 years; F. C. Boyce, B. Benson and W. A. Anderson, 48 years; Abe Vandeberg, 47 years; Wm. J. Redmond, 45 years; Fred M. Hodge and Chas. B. Hays, 44 years; W. H. Reynolds and Homer Stafford, 42 years, and P. F. Denner, 41 years.

❖ MICHIGAN ❖

Rex Paper Host to Paper Technologists

On Wednesday evening, January 14, the members of the Paper Technologist Club gathered in the offices of the Rex Paper Co. for a discussion of beating and sizing.

Max Bardeen, of the Lee Paper Co. and president of the Club, presented a paper on "The Freeness Tester as a Measure of Hydration." He prefaced his paper by remarks on some points brought out by recent researches at the Institute of Paper Chemistry, Appleton, Wisconsin. A series of tests were run there using various liquid media and various pulps, in an effort to explain hydration. Some very pertinent facts have been uncovered but no definite conclusions have been drawn as yet.

The second speaker of the evening was Harold M. Eastman of the Paper Makers Chemical Corporation, who had taken for his subject "Why Rosin Size?" Well, why?

Mr. Eastman has spent many years in research on sizing materials. He has hunted religiously for a substitute for rosin in the manufacture of size.

When used in paper, rosin does a greater variety of things, and responds favorably to the greatest number of tests, of any material yet tried.

Discussion was quite spirited on this subject and rambled off into paper-mill problems in general.

The Rex Paper Co. had provided a very appetizing and bountiful lunch which all enjoyed to the utmost. Harry Bradford, secretary of the company, did the honors and proved himself very proficient in the art of coffee pouring.

The next meeting of the club will be held at the Columbia hotel. Mr. Strasser of Stein Hall will speak on Starches.

General offices of the Sutherland Paper Company, previously located in the Sutherland division in Kalamazoo have been moved intact to the Standard division. L. W. Sutherland, president, states that the change will result in many conveniences and economies and will be generally beneficial.

Cost and Tech Men Hear Interesting Addresses

Mr. Norman Cowie, of the Hawthorne Paper Co., was the first speaker at the regular January meeting of the Kalamazoo Cost and Technical Association. He spoke on "Analyzing Cost of Sales." Mr. Cowie defined the cost of sales as "The total expenditure of funds used to produce that amount of sales." In quoting the speaker, we should note that in the phrase "That amount of paper sales," he is referring to the paper sales as given in the profit and loss statement.

There was considerable discussion on Mr. Cowie's paper.

Following this, President Whittington called for nominations for officers for the ensuing year. The following were elected: President, Glen Ingling, Kalamazoo Paper Co.; vice-president, Frank Libby, Kalamazoo Vegetable Parchment Co.; secretary-treasurer, Harry Bradford, Rex Paper Co.

Control in the Beater Room—Elbert Milham, of the Bryant Paper Co., gave a very interesting talk on "Determination and Control of Beater Furnish." The beater room in the paper mill is the compounding department and should be controlled as carefully as the compounding in the Upjohn pill factory or the compounding room of a tire plant or steel mill. In the latter cases, it is vitally necessary to exercise great care in the measurement of ingredients for the various batches and this should be true in the paper-mill but is not. Mr. Milham excuses the condition partly because of the large admixture of unavoidable impurities which will tend to defeat any effort at control, the great impurity being water. Copies of daily beater room production report such as is used

at the Bryant mill were distributed to those present by Mr. Milham, and the use of this report explained.

Watervliet Reports Good Year

The Watervleit Paper Co., according to a report made to stockholders, had a fairly good year in 1930. They were able to pay an eight per cent dividend for the year and have also increased their surplus fund by $120,000 which is to be used for the retirement of bonds. A call has been issued for $100,000 worth of the bonds but few care to give them up apparently. According to the president's report, the company is installing a 94-inch Waldron arch back type, ball bearing coating machine. The machine is motor driven and the first of this type in the Kalamazoo valley.

The Kalamazoo Paper Co. is making some small alterations in its No. 5 mill. The racks are being lowered in the coating room which will make it possible to get the paper off the coating machines more rapidly and as a result permit a speeding up of the machines. It is expected that an increase of 50 feet will be obtained as a result of this change.

Joseph Edward French

Joseph Edward French, president of the French Paper Co., Niles, Mich., passed away January 9 after a short illness, at the age of 66 years.

Mr. French was born in Three Rivers, Mich. After serving as a superintendent in a Michigan paper mill, he took up his residence in Niles in the year 1888 and became manager of the mill there known as the Michigan Wood Pulp Co., which had been organized by his father, J. W. French in 1872. In 1905 the company was reorganized, the stock being taken over by J. W. French and his sons. It has since been known as the French Paper Company. Following the death of his father in 1907, Mr. French became president of the company, remaining in that capacity until his death.

Mr. French was very well-known, and the funeral services which were conducted from the Baptist church of which he was a member, were attended by a large number of friends and business associates from the surrounding country. He was also a member of the Masonic and Elk fraternities.

Surviving the deceased are the widow and one son, Frank G. French, secretary of the French Paper Co.; two brothers. Frank J. French, vice-president of the French Paper Co. and Willard W. French of Los Angeles.

Address on Printing at January Supers Meeting

At the January meeting of the Michigan Division of Superintendents Association, Fred W. Gage of the Gage Printing and Engraving Company, Battle Creek, Mich., was the speaker of the evening.

Mr. Gage took up in a very interesting manner the relation of printing to paper, and took up the history of printing from the days of Benjamin Franklin down to the most modern methods.

The next meeting of the association will be held February 19, when another good program is promised by President Sievert of the Michigan Carton Co. and Secretary Pountain of the Bryant Paper Co. An effort is being made to increase the attendance at the meetings which are held on the third Thursday of each month.

Plans Progressing for Interstate Meeting

The committee on arrangements for the Interstate Meeting to be held in Kalamazoo May 22 and 23, held a second session February 6. Plans for the meeting are progressing rapidly, and general chairman, Glen Ingling expects this meeting to surpass former ones.

Registration this year will be in charge of Kent Kidder, of the Allied Paper Mills, and Harold Miller, of the Paper Makers Chemical Corp. Arrangements for the banquet are being taken care of by Frank Libby, Kalamazoo Vegetable Parchment Co. Harry Bradford, Rex Paper Co. is arranging entertainment for the golfers.

New Catalogues, Books and Publications

Atlas Valve Co., Newark, N. J.—This company has just issued a Data and Price Book descriptive of its Campbell Feed Water Regulator. In this catalogue improvements and changes in the Campbell regulator are explained, as well as the principle by which it operates, said by the manufacturers, to be different from any other regulator. The book contains a number of diagrams and valuable information.

Detroit Hoist and Machine Co., Detroit, Mich.—Catalogue 30-31 is descriptive of Detroit Hoists. Practically every type manufactured by this company is illustrated and described.

D. O. James Manufacturing Co., Chicago—A new catalogue No. 135 covers four sizes of small heavy duty worm gear reducers which are carried in stock by this company for immediate shipment. Complete information is given as to dimensions and horsepower rating at various speeds, also many installations are shown.

Prat-Daniel Corp., 183 Madison Ave., New York City—The new Thermix dust collector is announced in a folder just issued. There are two types of collector: type 4, combined with fan, and type 5 multi-cyclone, without fan. Sectional drawings of both types are shown, with a description of principles of operation.

Schutte & Koerting Co., Philadelphia, Pa.—Bulletin No. 8-K covers this company's line of turbine protecting valves. There is considerable data regarding construction features, sizes, prices and typical installations, etc.

Rhinelander Paper Co., Rhinelander, Wis.—An exceptionally fine specimen in the way of publicity has been received from this company by the publisher of THE PAPER INDUSTRY. The book is attractively bound, handsomely printed in colors on dull coated paper, and relates the story of how Rhinelander's Greaseproof Parchment is made from the selection of the spruce trees in the far North to the food products purchased from your grocer and butcher. The process of manufacture is carefully described, and a number of illustrations in color take the reader on a tour of this modern plant with a splendid aerial view of the mill and grounds.

Republic Flow Meters Co., Chicago, Ill.—"Efficiency" would seem to be the keynote of this company's activities for the year 1931. Among its plans for co-operating with the paper industry, a series of articles has been prepared by prominent men in the industry dealing with the latest methods for increasing paper-mill efficiency. The first of these articles is written by S. E. Tomczak, sulphite superintendent of the Flambeau Paper Co., Park Falls, Wis., on the subject "Temperature Control in Cooking Sulphite Pulp." Another interesting subject "How We Have Reduced Steam Consumption in Four Plants" has been covered by W. R. Crute, plant engineer and C. R. Hoey, Jr., steam distribution engineer of the Champion Fibre Co., Canton, N. C. Through the courtesy of H. T. Randall, assistant mill manager of the Champion Coated Paper Co., Hamilton, Ohio, an interesting article has been prepared on "Controlling the Use of Steam and Water in Paper-Mills." Copies of these articles may be obtained from the company upon request.

Jos. T. Ryerson & Son, Inc., Chicago—A unique catalogue recently published by this company includes practically every type of tool and portable machinery used in the metal working field. All supplies are omitted, the book being devoted entirely to equipment for manufacturers, job shops and contractors. Copies on request.

Taylor Forge & Pipe Works, Chicago—A new 32-page catalogue, No. 30-7, describes fully Seamless Forged Steel Boiler Nozzles used as outlets for boilers, tanks, shells and pressure vessels. This catalogue supersedes bulletin 29-13 and lists many new types and sizes of forged steel outlets developed during the past year. Copies will be sent to interested engineers.

T. B. Wood's Sons Co., Chambersburg, Pa.—A new grinder for sharpening tungsten-carbide high speed steel tools is announced in bulletin No. 174. The No. 1 "U.G." Grinder is complete with reversing motor and No. 1-B "U.G." Grinder is complete with Reversing Countershaft. The bulletin contains a complete description and full illustration of the Grinder.

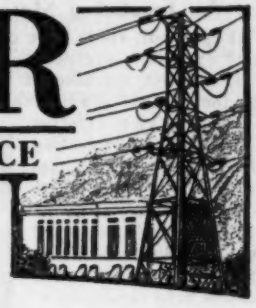
Reeves Pulley Company, Columbus, Ind.—A very useful Handbook of Variable Speed Control has been received from this company. Included is a list of the major industries and some of the machines or processes in those industries to which infinite speed regulation has been effectively applied. Prominently among these the paper industry appears. Reeves transmission is listed with construction details and tables for reference. There is a considerable amount of valuable information and data of a general nature.

An Introduction to a Conclusion—This is the intriguing title of a 28-page book bound in green boards, privately printed on Alverstoke handmade paper (English) for distribution to the friends of the Thomas N. Fairbanks Company Import Division, U. S. Envelope Company, at Christmas 1930. Of the 28 pages, 19 are blank, which leaves nine pages for text, and four of these are taken up with chapter titles and a colophon. The "Introduction" takes three pages and the "Conclusion" not quite two pages. The Introduction by Thomas N. Fairbanks describes the publication of a series of articles by William Blades in 1824 and the author's "Conclusion" is reproduced for the avowed purpose of heightening the appreciation of "all that contributes to the creation and possession of a fine book."

It should be stated that the articles by Blades appeared originally in the **Printers Register**, of London, under the general heading "The Enemies of Books." Mr. Fairbanks is evidently possessed of a pious desire to perpetuate the author's expression of his love for old books, and we are sure that this unusual Christmas gift will be heartily appreciated by all bibliophiles.

POWER

GENERATION - UTILIZATION - MAINTENANCE



By W. S. JOULE

This section turns the searchlight upon power and its allied problems. It shows up big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

Insuring Against Interrupted Power Supply

CONTINUITY of power supply is so important, and the applications of power generation and equalization so widespread, that it was inevitable that ultimately some form of insurance would be developed to take care of various causes of interrupted power supply, power plant accidents, etc. The operating departments of paper and pulp companies are usually too busy to pay much attention to insurance and such matters. On the other hand, the financial departments of the companies who give thought to this subject are usually too far-removed from the power plant end to appreciate the possibilities of insurance and all it implies. For this reason, an abstract of the recent report of the insurance committee of the National Electric Light Association may be of interest.

Steam boilers and other pressure vessels subjected to air, gas or liquid may now be insured so that the party carrying the insurance will be reimbursed for damage to the boiler, vessel, or even main steam pipes, and damage to surrounding property of the assured or others. Where specifically mentioned, the policy will also protect against damage due to failure of water columns, safety valves, connecting pipes and fittings, as well as steam pipes beyond the first valve.

Coverage also includes reimbursement for liability for injuries or death of persons both employed and not employed by the assured. Engine policies are similar to those for boilers. The assured may also be reimbursed for loss occasioned by accidental breakdown of the engine, except for such causes as damage to bearings due to overheating, ordinary wear and tear. Breakdown is defined as sudden, substantial and accidental breaking of the engine or any of its parts while running so as to prevent continued operation. Such breakdowns include fly-wheel explosions on the main shaft, cylinder explosions, failure of crank and shaft, cylinder trouble due to the presence of water, breaking of reciprocating parts, valve gears and over-speed accidents. Forms of fly-wheel insurance are well-known, having been in force for many years.

It is quite natural that insurance for electrical equipment should follow that for engines, turbines and boilers. Insurance against losses as the result of breakdowns of electrical machinery include burn-outs of generators, transformers, motors, switchboards, commutators, ground, short-circuits, etc., broken electrical connections, explosions, and lightning. Insulation breakdowns are also covered and the by-product accidents resulting from them. The chief difference between the insurance covering electrical equipment and boiler insurance is that in the case of electrical equipment, by far the largest loss is to the electrical equipment itself, whereas with a boiler the damage is usually to life and property outside of the boiler.

Steam-turbine insurance is now available and provides reimbursement for loss due to explosion or burn-out of turbine-generators driven by steam turbines, insulation failures, runaways and explosion. Specifically, steam-turbine insurance covers explosion of the turbine casing, burning out, short circuits or breakdowns of the electrical ends, complete dislodgment of the motor or loosening or stripping of the blade, gears or buckets. The report of the N.E.L.A. insurance committee defines such terms as breakdowns, meaning sudden and accidental breaking the formation or burning out of the unit or any part, either while in use, being installed and connected ready for use so as to prevent its continued operation, or to stop its functioning.

Still another form of insurance policy provides indemnity for loss arising out of the deprivation of usable electric current needed in the conduct of the insured's business as the result of the breakdown of the public utility service. This protection is applicable to the customers of the utility rather than to the utility itself, except where it buys power from some other source. A form of "use and occupancy" insurance provides protection against loss of profit and the obligation of fixed overhead expenses which continue while the plant is shut down as the result of accidents as mentioned above. This policy undertakes to make payment of a specific amount for each day and total amount of production caused by the accident.

Many firms, of course, carry their own insurance; that is to say, they pay whatever losses accrue on account of accidents. The fact that such policies are now available should tend to raise the maintenance of many plants to a higher standard. Where power plant insurance is carried, the insurance companies will undoubtedly insist upon stricter inspection and more careful upkeep and operation.

Draft Adjustments by Draft Gauge

DRAFT is all-important in the combustion of fuel. When you know what the draft is, for the ideal condition—when you know what it is, for some other undesirable condition—it is possible to know the cause of the trouble, and in most cases locate and remedy it.

A knowledge of draft is, of course, only a means to an end, and perhaps the best way of emphasizing the importance of draft and the reasons for understanding it and knowing how to use the draft gauge is to point out some of the things which the draft gauge will bring to light—things which exist in the majority of power plants, things which should not be tolerated, but which in most instances exist unsuspected and unknown, month after month. These are the things that are helping to give coal a bad name.

During the winter when the weather is cold, complaint is sometimes made that "the coal won't burn, the fire won't draw, the coal's got no life." The probable trouble is that the fires are being suffocated or asphyxiated. It will probably be found that all the windows in the boiler room are shut tightly, that the boiler room door is closed. How is the air to get into the boiler room that it may reach the ash pit, to furnish oxygen to the fire? Furnaces are "boxed up" and the fires cannot obtain enough air for combustion, since the only way to get air into the boiler room is for the fire or draft to suck or draw it through the cracks and crevices of the windows, etc.

It is often forgotten that from 12 to 24 lb. 36 lb. and more of air are required for every pound of coal burned. For every ton of coal used, probably 16 to 24 tons of air must enter the boiler room. How is the air to get in when all the windows and doors are closed?

An Insulating Material for Paper Mill Roofs

Paper mill roofs have offered many problems to designing and operating engineers. Large volumes of moist air, leaving a paper machine at a relatively high temperature, rise to the roof of a mill unless removed by suitable ventilating equipment. Unless proper provision has been made to insulate the roof, condensation and drip results. If the roof is of ordinary wood construction, only a few years are required to cause it to decay.

Proper insulation will reduce the amount of condensation and drip as well as increase the life of the commonly used wood roof. Although various materials have been used to accomplish this insulation, a new and novel material was suggested recently for this purpose.

This material was balsa, a wood obtained from the balsa tree. Balsa wood, so far as known, is the lightest wood that grows. It weighs approximately one-half that of cork and averages in the commercial product only five to seven pounds per cubic foot. This lightness results from the peculiar cell structure of the wood. The cell walls are extremely thin and have very little lignification. Such a structural arrangement confines within its large barreled-shaped cells a considerable quantity of dead air. This non-circulatory air represents approximately 92 per cent of the total volume.

Such a material is an insulator with structural strength. Lata Balsa, the trade name applied to all balsa wood by its sole importer and distributor in the United States, has an insulating efficiency equal to that of any commercially used product according to statements of the manufacturer. The thermal conductivity of Lata Balsa is 0.31 B.t.u. per hour per degree Fahr. per square foot per inch of thickness.

This wood treated to prevent decay and for waterproofing is made into panels with a Linderman joint up to thre inches in thickness, 40 inches wide and 14 ft. 6 in. long. Any convenient sized panel could, therefore, be supplied to meet the requirements of any job.

Detailed information will be gladly supplied upon request.

The Scofield Wire Cleaner

Gilbert J. Scofield Co., Inc., Watervliet, N. Y., well-known manufacturer of the Scofield felt conditioner, has placed on the market another interesting item of auxiliary equipment for paper-mills in the Scofield Wire Cleaner. This device is designed for cleaning wires of fourdrinier machines as well

as the wires of cylinder molds. Cleaning is accomplished by means of a vapor, the vapor being regulated as to temperature, density, and velocity.

The device, resembling in some ways the Scofield felt conditioner, is very simple in construction. In brief, it consists of a shaft having a single acme thread with a one-inch pitch. The shaft carries a bronze shoe which maintains a five-thread contact with it. The bronze shoe, attached to a hose from an injector, also carries a spray nozzle. The position of the nozzle is controlled by a handwheel and a gear mechanism with a four to one ratio. A telltale counting device graduated in inches and located on the gearcase indicates the position of the spray on the wire. The operating mechanism of the entire machine is enclosed to prevent water or foreign matter from affecting the lubrication or operation.

Detailed blue print and complete information will be furnished by the manufacturer upon request.

A New Calender Roll

A new calender roll with interleaved filling is now being manufactured by B. F. Perkins & Son, Inc., Holyoke, Mass. In this new patented roll, the filling is a new development, largely for use in glassine calenders finishing highly transparent papers carrying a large per cent of moisture. In finishing papers of this kind, as you know, the intermediate chilled iron rolls must be heated to a relatively high degree and the new interleaved filling resists the action of the heat.

These rolls are made to have the desired resiliency and finishing surface for the best calendering effect, but there also has been included in the making of the roll, heat resisting elements that will retard or obviate injurious effects of the heat. The heat resisting elements render the roll body heat-resisting, so that the elements may function to provide a body having the desired finished characteristics protected against heat deteriorating effects by heat resisting elements.

A Slide Comparator for Colorimetric pH Control

As a result of the long and varied experience of their entire organization with pH control equipment and methods, W. A. Taylor & Company has developed the new Slide Comparator. This instrument is unique in design and construction. Being molded from Bakelite it combines the maximum of durability, precision, convenience and simplicity.

The Slide Comparator consists of two principal parts, the slide and the base. The slide is a Bakelite case 10 inches long, 2¾ inches high and ⅝-inch thick. It contains 17 vertical holes and 17 horizontal slots which pass through the

exact centers of the holes. In these holes are placed the nine color standards for any given indicator and eight ampoules of distilled water. All these ampoules are held in place by a lid which is screwed on the top of the slide.

The base consists of two parts. The lower part contains a slot in which the slide may be moved back and forth, two holes containing vials of indicator solution, five holes containing test tubes, and a closed compartment for a ground glass plate. Vertical slots run through the three central holes in the base holding the test tubes, these slots corresponding exactly with any three of the slots in the slide. The ground glass is contained in a closed compartment directly behind the three slots in the base. The upper part of the base serves as a cover for the vials and test tubes when the set is not in use. It is fastened to the lower part by means of spring catches.

In making determinations, the top is removed from the base, three of the test tubes are filled to the mark (5 cc.) with the sample to be tested and placed in the three holes

back of the slots in the base. To the central tube 0.5 cc. of the indicator solution is added by means of the pipette and nipple and the contents are thoroughly mixed. The slide containing the color standards is now placed in position on the base and, holding the instrument toward a window or other source of daylight, the slide is moved back and forth in front of the test samples until a color match is obtained. The pH is then read off directly from the values of the front of the slide.

Being molded from Bakelite the Slide Comparator is unaffected by water, acids or alkalis. It therefore will not warp or come apart. Molding also gives it a machined precision that is impossible with wood or sheet metal.

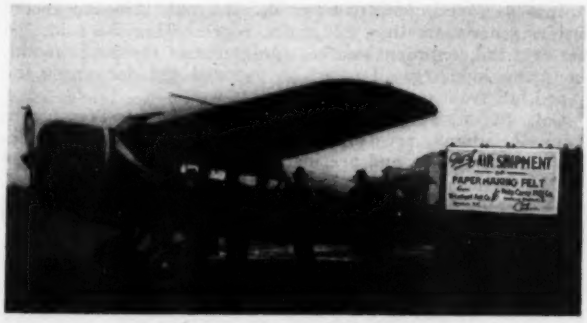
Since the color standards are enclosed in a Bakelite case, there are no loose standards to be inserted and removed in making pH determinations. Thus all chance of loss or breakage from handling individual standards is eliminated. All color standards and test tubes are 11.5 mm. outside diameter. This small equipment makes the set small and compact and therefore readily portable. Of far greater practical importance, however, is the fact that the resulting thinness of layer of material being tested enables one to make accurate determinations on far more highly colored and turbid materials, without dilution, than is possible with larger tubes.

The fact that determinations are made simply by sliding the color standards in front of the test sample until a color match is obtained makes the operation of the set extremely simple so that it is possible to teach a workman to use the set accurately with a few minutes instructions.

Slide Comparators are supplied to cover the pH range 0.2-13.6. Each comparator covers a range of 1.6 pH units, the standards being in intervals of 0.2 pH.

Air Shipment of Papermaking Felts

The first air shipment of papermaking felts, so far as is known, was made on January 14, 1931 by the Lockport Felt Company, Newfane, N. Y., to the Philip Carey Mfg. Co., Lockland, Ohio. The shipment resulted from a telegraphic



communication from John Allen Jack, mill mgr. of the Philip Carey plant to William H. Lee, treasurer and general manager of the Lockport Felt Company stating that he was in urgent need of certain felts.

Mr. Lee, an aviation enthusiast and owner of a Lockheed plane, decided to deliver the necessary felts to Mr. Jack by plane in order to give his customer best possible service and to eliminate the necessity of shutting down the mill. He summoned his pilot, Lieut. Allen Van De Mark and in a short time the plane loaded with the order of felts was on its way to Lockland, near Cincinnati, Ohio. Mr. Lee accompanied his pilot on the trip, and delivered the felts personally to his customer. The trip, a distance of 420 miles, was made in two hours and 40 minutes.

Mr. Lee has traveled by plane on previous occasions to make business calls on his customers but this occasion was the first time that he had used the plane to make a delivery of felts.

A statistical service for the Glassine Division of the American Paper and Pulp Ass'n has been developed and put in operation.

Paperboard Industries Association

The January meetings of the Paperboard Industries Association were held at the Drake Hotel, Chicago, January 14 and 15, 1931. All sessions were unusually well attended and were productive of much constructive work.

General Meeting—The general Meeting of all groups of the association convened on Thursday afternoon, January 15, with President J. H. Macleod presiding. He submitted the report of the executive committee, which had held three meetings since its election in November. Among other matters included in the committee's report, was the appointment of Mr. Hugh Strange, the retiring president, as National Councillor on U. S. Chamber of Commerce matters.

Group Meetings—The Folding Box Group held its meeting the morning of January 14, Vice-President Donaldson presiding as chairman. The session was well attended and was recorded as one of the best meetings the group has ever held. After the regular business was disposed of, the subject of conditions in the industry was taken up and some very constructive ideas given out. A special committee was appointed to bring in suggestions for improving conditions in the industry.

Vice-President Schmidt presided at the meeting of the Paperboard Group which met Wednesday morning, January 14. Following the reports of the various committees, the chairman submitted an interesting review of the situation in the paperboard industry. Hugh Strange gave a most interesting talk on The Railroad Situation, which was followed by an address on Unemployment by J. L. Barchard.

The regular meeting of the Container Group was preceded by a special session which had been arranged by Vice-President Dollison for the purpose of informally discussing ways by which the Container Group might assist the Association as a whole.

New Process to Increase Life of Boiler

In a report from Urbana, Illinois, published in the January 29 issue of the **Chicago Tribune**, it was stated that a saving of millions of dollars annually to industries will result from the solving of another research problem conducted at the University of Illinois.

A water treatment process, which has been carried on for more than six years under the direction of Prof. Fred G. Straub of the department of chemistry, has been found to prolong the life of high pressure steam boilers and which will prevent frequent explosions from boiler embrittlement. Success of the process has already resulted in the saving of $10,000,000 in the Chicago area alone and will result in an annual saving of from $3,000,000 to $20,000,000, in the State.

Because of alkaline waters, high pressure steam boilers have had to be replaced frequently, sometimes every three or four years, whereas a boiler should last from 20 to 30 years; when a boiler fails it often means the loss of life, in addition to the great replacement expense.

Joseph E. Hedin

Joseph E. Hedin, a native of Norway, where he was educated and got his early training as a chemical engineer, died in Chicago, at the Stevens Hotel, on Tuesday, January 27.

Mr. Hedin was one of the original members of the Technical Association of the Pulp and Paper Industry. He had held a number of important positions in Canadian and in United States pulp and paper plants, one of his earliest connections being with the St. Lawrence Pulp & Lumber Corporation, Chandler, Quebec. He had also been connected with the Howland Pulp & Paper Company, Howland, Me., Tonawanda Paper Company, Tonawanda, N. Y., and later with the Jessup & Moore Paper Company, Wilmington, Del. His most recent connection was with the Union Bag & Paper Corporation as superintendent of their subsidiary company, the Union Bag & Paper Power Corporation, operating a sulphate mill at Tacoma, Wash. He was an exceptionally able pulp engineer and had designed mills and equipment.

He is survived by his wife and three children.

The Month at Washington

ALTHOUGH no formal action has been taken by the House committee on expenditures in the government departments, following hearings on the Wood bill to set up a million dollar paper mill at the Bureau of Engraving and Printing in Washington, D. C., to manufacture distinctive paper for U. S. currency and securities, it is well understood that this measure will be acted upon adversely by the committee.

The hearings disclosed that Herbert D. Brown, chief of the U. S. Bureau of Efficiency was endeavoring to break up an "alleged monopoly" held by Crane & Co. of Dalton, Mass., for more than 50 years in securing under competitive bids the contract for supplying the entire quantity of this distinctive paper.

All hope of favorable action by the House committee went glimmering when Walter E. Hope, Assistant Secretary of the Treasury under whose administration the Bureau of Engraving and Printing comes, testified that the Treasury Department "does not favor the proposal." Corroborative testimony by Alvin W. Hall, director of the Bureau of Engraving and Printing was to the effect that no good purpose could be served by putting the Government in the papermaking business, and that considerable difficulty might be caused by such an experiment in shifting from a concern which for half a century had given entirely satisfactory service.

Assistant Secretary Hope declared that this proposal calls for a complete reversal of the previous practice of the Treasury over a period of many years. It would seem to be justified only upon the ground that existing conditions are unsatisfactory, and incapable of correction and that the proposed governmental project insures improved conditions at lower costs. He assured the committee that the present contractors have co-operated fully and that never in the entire 50 years has any shipment of paper had to be rejected.

Mr. Hope stated the Treasury does not think it advisable to enter upon the manufacture of distinctive paper, merely for the purpose of developing a secret process, believing that the secret process should first be developed or at least the consideration should be given first to the possibility of developing such a process at the Bureau of Standards. Under the present arrangement, adequate controls and supervision are exercised over the manufacture of distinctive paper and in the absence of the development of a secret, distinctive paper, little if any additional necessary protection against counterfeiting would be affored by a government paper-mill.

William H. Moran, chief of the U. S. Secret Service, which is charged with the suppression of counterfeiting, testified that after more than 40 years, his conviction is that the use of a recognized distinctive paper would be a greater aid to counterfeiters in deceiving the public generally and that the public would rather be educated to finding their protection in the quality of engraving and printing.

Other Treasury officials supported the Government's opposition to the proposal in the Wood bill.

Erratic charges that Crane & Co. have dealt unfairly with the Government and have not co-operated heartily were thoroughly refuted at the hearing, and this fact was emphasized later in the House by Congressman Allen T. Treadway, representative from the District in which the Crane Company manufacture this distinctive paper. He censured severely the U. S. Bureau of Efficiency for presumptuously exceeding its authority in recommending such a project as a government-owned and government-operated paper-mill

The Wood proposal was shown by expert testimony to be absurd. Opposition was voiced by the entire paper manufacturing industry against any effort to put the Government into business, and Representative Wood, chairman of the House Appropriations Committee, who has been conspicuous in denouncing in the House any proposal to put the Government into business, was left squirming, "hoist on his own petard."

It was shown by direct oral and written testimony that the Government can get paper a great deal cheaper through private industry than it can ever hope to make it. It was shown that the Crane Company's price to the Government is ten to 17 cents per pound under the market price for paper of the same quality without the distinctive marking feature. Other manufacturers recorded their disinclination to bid for the Government's requirements when they can get better prices in the open market and because of the Crane Company's efficiency and half-century of experience in exclusive manufacture of this distinctive paper.

E. H. Naylor, of Springfield, Mass., general counsel for the National Writing Paper Association, testified on behalf of the manufacturers of high grade writing paper. He presented a letter from S. L. Willson, president of the American Writing Paper Company, of Holyoke, Mass., which operates 16 mills and is one of the most efficient companies in the country, and which would be a most likely competitor of the Crane Company, denouncing as impractical the proposal for a government-owned mill.

Jesse H. Neal, general manager and treasurer of the American Paper and Pulp Association which represents all grades of paper in the United States, and whose members make 75 per cent of all papers, strongly protested against the proposed government paper-mill. He put into the record letters from more than 200 mills, representing, he said, 100 per cent the sentiment and best judgment of the paper manufacturing industry, all of which opposed and denounced the Wood bill from every standpoint.

Col. B. A. Franklin, vice-president of the Strathmore Paper Company, president of the Writing Paper Manufacturers Association, and president of the Associated Industries of Massachusetts recorded the opposition of the entire business organization with which he is associated, to the Wood bill.

Col. Franklin justified the Crane Company's prices as being 17 cents lower than the open market price for paper of equal grade, and explained the necessity for the step-up prices bid by Crane for less than the total amount of the government contract, which had been especially criticized by Representative Wood, and by Director Brown, of the U. S. Bureau of Efficiency. These latter two men were the only ones at the entire hearing who spoke in a derogatory way concerning Winthrop Murray Crane, Jr. The entire trend of testimony by others was in high praise of Crane & Co. and of the integrity of those who have had charge of that concern since it was founded more than 60 years ago. The hearing closed with encomium for Mr. Crane, when practically every member of the committee, with all of the facts before them insisted on having the record show that the western Massachusetts concern has always co-operated zealously with the Government, had met specifications, had never had a shipment of paper rejected, and that this good service had resulted from practical knowledge and was only disturbed transiently when theoretical experimentation was made requiring a different quality of paper than that defined in the specifications under which the Crane Company had been awarded the contract.

Consent Decree Ends Monopoly—What the Department of Justice considers a long existing monopoly and restraint of trade in the manufacture and sale of valve bags was brought to an end by entry of a consent decree in the case of the

United States versus Bates Valve Bag Corporation, under the Clayton and Sherman Antitrust Acts, by the United States District Court at Wilmington, Delaware, January 20. The St. Regis Paper Company, a New York corporation, was also a defendant in the case. The two companies were charged in the suit with requiring users of bag filling machinery leased from them to confine their purchases of valve bags to the defendants and others named by them on pain of forfeiting the right to the filling machines. To promote and exploit this system of monopoly, it was charged, the defendants had arranged with a selected group of bag manufacturers, to refuse to furnish valve bags to any machine user not observing these restrictions. It was further charged that many other bag manufacturers had found it impossible to engage in the business in the face of this system of monopoly charged by the Government. The court entered a perpetual injunction in sweeping terms against the enforcement of the restrictions on bag purchasers as to the sources from which they may supply their needs for valve bags. The injunction also gives the filling machine users the right to fill valve bags with the machines obtained from the defendants without regard to the source of purchase.

Saving U. S. Pulpwood—With careful forest management, owners of spruce timberlands in New York and the New England States can maintain them indefinitely as one of the chief sources of pulpwood for the paper industry, according to Marinus Westveld, of the Forest Service, U. S. Department of Agriculture. Forty-three per cent of the pulpwood now used, according to a statement by the department, is spruce. Favorable growing conditions of the northeast make it possible to maintain and even to increase domestic production. Improved practices in the protection of young growth at the time of cutting and in slash burning and fire prevention are probably of first importance, says Mr. Westveld, who is silviculturist of the Northeastern Forest Experiment Station. Five main types of spruce-fir forest—the spruce flat, spruce hardwood, spruce slope, spruce swamp, and old-field spruce should be considered in handling the spruce stands of the northeast, says Mr. Westveld. Recent studies of the northeast spruce stands have been published in Circular 134-C, "Suggestions for the Management of Spruce Stands in the Northeast," and may be obtained from the Office of Information, U. S. Dept. of Agriculture, Wash., D. C.

Interstate Commerce Commission Decision— The Interstate Commerce Commission in reconsidering the matter of rates charged on building paper in carloads from Unionville, Conn., to New Bedford, and Boston, Mass., and Piers 37 and 40 New York, found that these rates were unreasonable, and reparation was awarded. This was a reversal of a prior decision of the commission in the matter of the Case Manufacturing Company, versus New York, New Haven & Hartford Railroad Company, and other lines. The commission found that the rates assailed were unreasonable to the extent that they exceeded 17.5 cents to New Bedford, 16.5 cents to Boston, and 15.5 cents to the New York piers.

Another Move to Exclude Convict-Made Goods—Protection of the pulpwood industry of the northeast, and other industries in this country is sought by the Kendall bill before the House Ways and Means Committee, designed to exclude convict-made goods. Russian interests appeared before the committee to oppose the bill. Representative Beedy, Republican, and Representative Nelson, Republican, of Maine, requested protection of the pulpwood industry of their state. Seymour Lowman, assistant Secretary of the Treasury in charge of customs, said the State Department had advised the Treasury against sending investigators to Russia as they might be lined up against a wall and shot, thus causing an international crisis. Lowman did not think the Kendall bill necessary and said it would open the door for certain convict-made goods to come into the country on the grounds that this country does not have sufficient supply of the commodity. Recently Lowman, in allowing entry of certain disputed shipments of Russian pulpwood, which had been detained on charges that it had been convict made, said the Treasury intends to enforce that part of the tariff law prohibiting entry to anything made wholly or in part in any foreign country by convicts.

Employment and Pay-Roll Totals—General decreases in both employment and pay-roll totals found throughout the country in December by the Bureau of Labor Statistics, are contrasted with a slight turn for the better in figures for the paper and printing industry. Returns from 42,041 establishments in 15 major industrial groups having in December 4,711,937 employees whose combined earnings in one week were $116,694,513 showed a decrease of one per cent in employment and a decrease of 0.4 per cent in pay-roll totals, as compared with November. Manufacturing industries as a class showed a decrease of 1.8 per cent in employment, and 1.3 per cent in employment.

While there were some decreases shown in some phases of the paper and printing industry, employment generally held its own while there was a shade of gain in pay-roll totals. The figures, taking the monthly average of 1926 as 100 are shown to be as follows:

Manufacturing Industries	Employment			Pay Roll Totals		
	1929	1930		1929	1930	
	Dec.	Nov.	Dec.	Dec.	Nov.	Dec.
GENERAL INDEX	91.9	76.5	75.1	92.0	68.3	67.4
Paper and printing	103.8	95.7	95.7	109.4	97.3	97.9
Paper and pulp	95.5	84.9	84.9	98.6	80.0	79.3
Paper boxes	99.9	90.9	97.7	106.4	92.9	87.4
Printing, book and job	106.1	95.9	98.0	109.9	97.0	99.8
Printing, newspapers	112.0	109.2	108.4	117.7	111.6	112.4

"Novel News" Print Situation—The Treasury Department move to place customs duty on newsprint paper thicker than 0.004 of an inch which formerly had been admitted free of duty, may cause some cheaper magazines and newspaper to stop the use of this heavier paper, and change to standard newsprint which still is duty free, according to unofficial rumors reaching Washington from trade sources. The Treasury decision establishes the paper of thicker than .004 as "novel news," and will assess a duty of one-fourth of a cent a pound and ten per cent advalorem. The thinner newsprint will continue to come in free. In case some concern attempts to test the case in the Customs Court in New York, proceedings will take place in that court, but official reports would not reach Washington customs bureau headquarters on the matter until much later.

◆ NEW YORK CITY ◆

I. P. Wins Power Suit

The International Paper Company won a victory in the United States Supreme Court when the Court reversed a judgment of the Court of Claims and decided that the Government must pay the company $304,685 for water rights it held in the Niagara River during the World War. The opinion was handed down on January 18 by Associate Justice Holmes, who dismissed argument that the Secretary of War did not have Congressional authority in the requisition of the water rights.

"We shall give scant consideration to such a repudiation of responsible liability," he said. "The Secretary of War in the name of the President, with the power of the country behind him, requisitioned what was needed and got it. Our conclusion upon the whole matter is that the Government intended to take and did take the use of all water power in the canal; that it relied upon and exercised its power and eminent domain to that end; that, purporting to act under that power and no other, it promised to pay the owners of the power and that it did not make the taking any less a taking for public use by its logically subsequent direction that the power should be delivered to private companies for work deemed more useful than the manufacture of paper for the exigencies of national security and defense."

The Brainard Paper Company, of 28 Beekman street, New York, among the best known paper merchandising concerns in the metropolitan district, has added the following experi-

enced salesmen to its sales force: Richard M. Burbank, formerly with the White-Burbank Paper Company; William P. Maxwell, formerly with the Miller & Wright Paper Company, and Randolph C. Harden, formerly with the Magnolia Paper Company, of Fort Worth, Texas.

The Taylor Paper Company, Inc., has been incorporated under New York State laws to take over and expand the company of the same name at 300 Fourth avenue, New York City, where offices and warehouse are situated. Frank E. Taylor and Kenneth R. Gregory are at the head of the new organization.

Harry S. Coke

Harry S. Coke for many years manager of the Maine Coated Division of the Oxford Paper Company, died on January 6 in the Knickerbocker Hospital, New York, where he had been taken several weeks before for treatment.

Mr. Coke was born in St. Louis 53 years ago. His first affiliation with the paper industry was with the Butler Paper Company in that city, later representing the company in Chicago. Afterward he became connected with the Bardeen Paper Company in Otsego, Mich., eventually becoming superintendent of the mill, and in 1913 he went to Rumford, Me., to organize the Maine Coated Division of the Oxford Paper Company, then newly built. He was manager of the division from the start, was active in local civic affairs, and associated with lodges and organizations. He was a director of the Oxford Paper Company, and also a director of the Rumford National Bank. An ardent golfer, he founded the Oakdale Country Club at Rumford, and was its president at the time of his death.

G. A. Vollmer, formerly vice-president of the Kieckhefer Container Corporation, and C. H. Andrews, formerly of the Robertson Paper Company, have joined the sales staff of the Robert Gair Company, paper, board and box manufacturer with headquarters at 420 Lexington avenue, New York.

Walter B. Tappen, associated with D. S. Walton & Co., paper merchants of New York, for 22 years, and Gustave C. Indruk, with the same company for 31 years, have formed a partnership to be known as the Tappen & Indruk Company with offices at 260 West Broadway, and warehouse at 50 Lispenard street, New York, to deal in paper, twines, and special bags and envelopes.

Robert Day Carter, organizer and former president of the Wanaque Paper Company, at one time manufacturer of book paper in Wanaque, N. J., died at his home in Llewellyn Park, N. J., on January 22. Mr. Carter retired from active business life about ten years ago. He was the first mayor of the town of Wanaque, a director of the Bureau of Associated Charities of the Oranges, a trustee of Trinity Congregational Church and a member of the New England Society of the Oranges. During the World War Mr. Carter served on the Passaic draft board. He was born in Cecil County, Maryland. A widow, two sons, a brother and two sisters survive.

Arthur Schroeder, sales manager of the Pejepscot Paper Company, of 42 Broadway, New York, has announced that Alfred T. Carter has joined the sales organization of that company. Mr. Carter has been with the Orono Pulp and Paper Company and the Paper City Manufacturing Company.

The Rugel Paper and Pulp Corporation, of New York City, is the name of a new concern incorporated under New York State laws with a capital of $20,000. The corporation is represented by A. Stein, of 6 East Forty-fifth street, New York.

The Wansco Paper Products Company, Inc., of New York City, has filed notice of an increase in capitalization from $10,000 to $30,000.

❖ NORTHERN NEW YORK ❖

St. Regis Reports Good Year

The annual meetings of the St. Regis Paper Co. and of the Power Corp. of New York were held Jan. 14 in the offices of the St. Regis Co. in Watertown. Directors of both concerns were elected and the actions of the officers for 1930 were ratified by the stockholders. The officers will be elected at a later meeting. H. Edmund Machold, a director in both companies, presided at the meetings. The directors of the St. Regis Co. were elected as follows:

D. M. Anderson, J. N. Carlisle, B. B. Taggart, D. C. Middleton, of Watertown; F. L. Carlisle, R. B. Maltby, W. K. Dick, H. E. Machold, R. K. Ferguson, C. E. Norris, Jonathan Buckley, Alvah Miller, A. M. Dick and Prentiss N. Gray, of New York.

The directors of the Power Corp.: F. L. Carlisle, Jonathan Buckley, W. K. Dick, R. K. Ferguson, R. B. Maltby, Alvah Miller, C. E. Norris, F. A. Rogers, T. J. Walsh, H. E. Machold, of New York; John N. Carlisle, D. M. Anderson, H. G. Davis, D. C. Middleton, M. S. Wilder, W. P. Creager, of Watertown; J. F. Schoelkopf, Jr., and F. D. Corey, of Buffalo; H. A. Fairman, Schenectady; H. S. Lewis, Beaver Falls, and S. Piek, Syracuse.

Mr. Machold told the stockholders that the Carlisle companies had a very good year, and that the annual statements would be presented at the next meeting of the boards of directors.

J. P. Lewis Co. Buys Groundwood Mill

The J. P. Lewis Co. of Beaver Falls has arranged to acquire the Lewis, Slocum & LeFevre Co. Inc., also of Beaver Falls, it was officially announced on Monday, Feb. 2. The properties consist of a groundwood pulp mill in connection with one of the finest water powers on the Beaver river, which because of the Stillwater reservoir, has the most uniform flow of any stream in the Adirondacks; the pulp mill having a capacity of 20 tons per day with sufficient power available to increase this output to 30 tons, and a paper-mill having a daily capacity of 20 tons of high grade board made from wood pulp. For many years this mill has been famous for its bottle cap board and it is understood that the manufacture of this grade will be continued in the future and that other grades known to the trade as having been originated by the J. P. Lewis Co. will also be made.

The Lewis, Slocum & LeFevre Co. was formed through a consolidation of the partnerships of Lewis & Slocum and Lewis, Slocum & LeFevre, following the death of James P. Lewis and John N. Slocum, pioneers in the wood pulp and the pulp board industry in northern New York. The Lewis, Slocum & LeFevre Co. has operated the pulp and paper-mill at Beaver Falls since 1913.

Announcement was also made of the re-association with the Lewis interests of Lawson Ramage of Watertown, who for about ten years was general superintendent of the J. P. Lewis Co. mills. Mr. Ramage severed his connections with the Lewis mills about five years ago in order to assist his brother Archibald Ramage, in the management of the mills of the Mississquoi Pulp & Paper Co. of Sheldon Springs, Vt. Following the death of his brother, and the passing of the control of the Mississquoi mills to other interests, he was associated with the Brownville Board Co. of Brownville. Mr. Ramage will be active in the manufacturing and sales promotion departments of the J. P. Lewis Co. and will particularly devote much of his time to the operation of the Lewis, Slocum & LeFevre Co. mill, which will be operated as a division of the J. P. Lewis Co.

Acquiring of the Lewis, Slocum & LeFevre properties by the J. P. Lewis Co. will undoubtedly lead to a combined hydroelectric development of the power at Beaver Falls where a head of 70 feet makes available a possible development of about 7,500 horsepower. A considerable amount of power is now used in operation of both the J. P. Lewis Co.

and the Lewis, Slocum & LeFevre Co. mills, this power company coming from the High Falls plant of the Beaver River Power Corp., located about four miles from Beaver Falls. The plant is owned through the Beaver River Power Corp. by the Lewis interests.

Forestry Building to Start This Month

Construction will probably start in February on the Louis Marshall Memorial Science Building of the New York State College of Forestry at Syracuse University for which $600,000 was appropriated by the state in 1930 according to the officials of the college.

The bids for construction work opened by Dr. A. D. Simpson, Assistant Commissioner of Education at Albany show C. M. McLean & Sons of Binghamton low bidders for the main construction work.

The new building will relieve the congestion in the present college where for many years there has been insufficient laboratory and classroom space. The building will house the Departments of Silviculture, Zoology, Entomolgy, Botany, the Roosevelt Wild Life Station, the Soils Laboratory and the Library which will be named in honor of former Dean Franklin Moon. Provision has also been made for a Forestry Museum and a large auditorium.

Papers incorporating the Unity Paper Corporation, located in Potsdam, have been filed with the Department of State at Albany. The papers stated that the company would manufacture novelties of all kinds. Bernard Wade, Robert H. Burns and Harry M. Ingram, all of Potsdam, are equal stockholders and directors. The company is capitalized at $100,000. Harry M. Ingram has been elected president, F. L. Cubley, vice-president; William O'Brien, secretary, and Bernard Wade, treasurer and general manager. The concern was formerly known as the Unity Paper Mills, Inc.

The United States Patent Office has granted patents to Wilbur L. Wright of Fulton and Frank A. Johnson of Felts Mills for inventions they have perfected. Wright's patent covers a tapered or nesting paper can. The inventor assigned his patent rights to the Oswego Falls Corp. He filed his claim April 29, 1929. There were nine patentable features. A chemical pulp making process was developed by Johnson. The process consists in subjecting chemical pulp to a grinding operation rather than a beating action. The inventor assigned one-fourth of his rights to John H. O'Connell, Springfield, Mass., one-fourth to John D. Haskell, Fulton, and one-fourth to Dilts Machine Works, Fulton.

The Continental Paper Bag Corp., makers of tissue paper products in Watertown for about 43 years, has closed its plant. Over 50 workmen were thrown out of employment. W. R. Reddick was superintendent of the plant.

Harry P. Gould, head of the Gould Paper Co. of Lyons Falls, has been elected president of the Lyons Falls National Bank. New stock, valued at $37,500 has been issued, and Mr. Gould has 215 of the 250 shares.

The Moyer & Pratt Co. mills at Lyonsdale were closed for a time during the early part of January because of low water. These mills are among the largest tissue paper manufacturing plants in northern New York.

The W. H. Loomis Talc Corp. of Gouverneur resumed operations January 12 after a shut-down of two weeks for inventory and repairs. The industry employs about 250 men. Willis H. Loomis of Gouverneur is president of the firm.

William A. Dean, electrical superintendent of the International Paper Co.'s plant at Pyrites, has been transferred to the International's Hudson river plant at Corinth in the capacity of electrical superintendent. He assumed his new duties January 19. Mr. Dean was employed by the De Grasse Paper Co. at Pyrites in 1919 and in 1921 succeeded Peter Loftus as electrical superintendent. He continued in that capacity when the International Paper Co. took over the plant and in 1930 also became assistant to the mill manager. Mr. Dean's transfer is due to the closing of the mill in July, 1930. Since that time he has remained at the plant to supervise installation of an electrical steam boiler which is now in operation.

Matthew M. Bagg

Matthew M. Bagg, 70, prominent in the paper industry in northern New York and a resident of Watertown for 42 years, died at his home, January 18. He was identified with the Brownville Board Co., the Newton Falls Paper Co., the St. Regis Paper Co., and the Ontario Paper Mill during his active participation in business.

Mr. Bagg came to Watertown in August, 1888, to enter with E. B. Sterling into the management of the Ontario Paper Co. mill which had just been built at Glen Park and of which George W. Knowlton was president. He remained with this company for 11 years, when it was sold in the spring of 1899 to the International Paper Co. He was then identified for about two years with the St. Regis Paper Co. when extensive changes were made in the property at Deferiet. In 1901 Mr. Bagg, at the request of the late Stuart D. Lansing of Watertown, became manager of the Newton Falls Paper Co. at Newton Falls and served in that capacity for four years. In June, 1905, resigning from that position to become a partner of J. Munson Gamble in the Brownville Board Co. This partnership continued until October 2, 1915. The following three years Mr. Bagg travelled extensively and in 1919 he returned to business, purchasing the wholesale paper and paint business of the late Clarence A. Mack. At the close of a year and a half, because of failing health, Mr. Bagg disposed of the business to Allen S. Perkins of the Black River Paper Co.

Michael J. Argy

Michael J. Argy, superintendent of the Cliff Paper Co. of Niagara Falls, died at Mercy hospital, Buffalo, on Tuesday, January 27.

Mr. Argy was 63 years old and a native of Lawrence, Mass., where he began his papermaking career in his father's mill. Later he became superintendent of some of the largest plants in the country before going to Niagara Falls in 1902 as superintendent of the Cliff Company.

Mr. Argy was the inventor of many devices for the manufacture of paper and attained a nation-wide reputation as an authority on the manufacture of pulp and paper. His son, William J. Argy, is superintendent of the Gould Paper Co. plant at Lyons Falls.

Prof. John Wallace Stephen, 67, head of the department of silviculture of the New York State College of Forestry, Syracuse university, died early in January at his home in Syracuse. He had been a member of the faculty of the College of Forestry since 1912.

The Paper mill of the Dexter Sulphite, Pulp & Paper Co. is again operating on a full-time schedule, it was announced Feb. 2. The sulphite mill is running half-time and the bag factory 60 per cent of the time. More orders are responsible for the present paper-mill schedule. A month ago, the mill was giving employees work only three and four days a week. About 350 men are now working in the three mills of the Dexter Co.

Peter Mott, retired superintendent of the Gould Paper Co. mill at Lyons Falls, died at Bloomfield, N. J., Saturday, Jan. 31. Mr. Mott was 78 years old.

The annual meeting of the Algonquin Paper Corp. of Ogdensburg was held Tuesday, January 27, when the follow-

ing officers and directors were elected: President, Frank A. Augsbury of Ogdensburg; vice-president, Clarence Cook of Canton; secretary and treasurer, William E. Westbrook of Ogdensburg. Directors, Frank A. Augsbury, Willard S. Augsbury of Canton, Clarence Cook, William E. Westbrook and Arthur Whalen of Ogdensburg.

Officers of the Harmon Paper Co. of Brownville were elected Feb. 2 as follows: J. J. Warren, president and treasurer; Miss Muriel P. Shaver, secretary, and A. E. Warren, assistant secretary. The directors are J. J. Warren, Miss Shaver, A. E. Warren, D. F. Warren and F. M. Boyer.

Carthage Co. Stock Transferred

John C. Whaling, Jr., of Carthage announced January 20 that the final papers have been signed for the transfer of the stock in the Adirondack Core & Plug Co. of Carthage owned by John T. Gormley to John Whaling, Sr., John C. Whaling, Jr., and George Whaling, all of Carthage. Mr. Gormley was for years treasurer of the company. George Whaling now becomes the treasurer. Other officers of the company are John Whaling, Sr., president, and John C. Whaling, Jr., vice-president.

The transaction was one of the largest of its kind in Carthage in sometime. The Adirondack Core & Plug Co. conducts a retail lumber and mill work business. It owns large tracts of timberlands. The logs are cut up at Carthage and for the most part made into wooden plugs which are shipped to paper mills in northern New York and points in the New England and the Middle Atlantic states. The stock in the company has been owned jointly for the past 25 years by John Whaling, Sr., and Mr. Gormley.

The Keystone Hardwood & Chemical Co. of Glenfield, which has been closed for several months may resume operations in the spring if business conditions warrant, according to Joseph G. Gokey of Tupper Lake, one of the receivers of the concern.

◆ WISCONSIN ◆

Consolidated Shows Increase in Tonnage

Satisfactory showings for the year 1930 are reported by several of the large paper mills operating in Wisconsin, with a correspondingly optimistic outlook for 1931.

Reports submitted at the annual meeting of the Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis., indicate that the company had an approximate increase of 22 per cent in tonnage, and showed a considerably larger profit than in either 1928 or 1929. Details of their statement were not made public. During this time the company changed part of its mills over from newsprint to finer grades and is finding a ready market for these. Most of the output was contracted for early in 1930, making it possible to run close to capacity.

Walter L. Mead, son of George W. Mead, president of the Consolidated Company, was elected a member of the board of directors to succeed W. D. Fowler, Chicago, resigned. Those re-elected were George W. Mead, president, L. W. Kraus, Stanton W. Mead, treasurer, Theodore W. Brazeau, F. P. Hixson and E. B. Redford, secretary. The board will elect officers upon the return from Florida of George W. Stanton and Walter Mead.

Earnings of the Northern Paper Mills, Green Bay, Wis., exceeded those of 1929, according to the annual reports submitted to stockholders. The net for combined operations of the Northern Mills, the Tuttle Press Co. and the Northern Electric Co. was $370,202.49 for 1930, after provision for all charges including income tax. This compares with $364,445.18 for 1929 and will figure $4.35 a share on common stock after paying preferred dividends. Stockholders were paid dividends of $2.00 a share. The Northern Electric Co. had a drop in earnings of $43,379.58, due entirely to the lessened amount of rainfall in 1930 and the consequent use of steam power instead of waterpower. Full time operation was maintained throughout the year by all three companies, with 793 workers and a pay-roll of $1,258,272. The year 1930 proved to be the best in the company's history.

New Equipment at Badger Paper Mills

Installation of a four-color printing press for waxed bread wrappers has been completed by the Badger Paper Mills, Inc., of Peshtigo, Wis. The improvement cost $30.000 and provides a press with a capacity of 10,000 impressions an hour, or 100,000 individual bread wrappers an hour. A set of Bird rotary screens has been installed in the paper mill also, and a new wet end on the bond machine will be put in next month.

Constant progress has been made by this company since starting two years ago in the former Peshtigo Paper Co. mill. This is partly due to the company's plan to complete the manufacture of specialties, including the printing, as well as to make the pulp and paper. The line includes mimeograph, offset and general sulphite bonds, ledger and manifold stock, drawing paper, manifold tissue, waxed wrappers, waxed shelf paper, etc.

Full time operations are in effect at the Menasha Paper Corporation, Menasha, Wis., with about 60 employees, according to announcement of W. H. Nelson, president. With a new power plant, new rotary room, remodeled workrooms and a general overhauling of the machinery, the company is ready to re-enter the strawboard industry with good prospects ahead for the year. The plant has been closed since the bankruptcy of the former owners. It has two fourdriniers, 63 and 74-inch, and a capacity of 30 tons daily.

Another enlargement is planned by the Kimberly-Clark Corporation at its large mill at Kimberly, Wis. Plans and specifications have been completed for an acid plant costing approximately $80,000. The structure will be of fireproof construction, one story and basement, dimensions 58 by 120 feet. Bids are being received on the general contract.

Building operations probably will be started this spring for the new $900,000 home for the United States Forest Products Laboratory at Madison, Wis. The University of Wisconsin has deeded over to the government the necessary building site and is now clearing up the question of maintenance of the building. It is contended by some members of the board of regents that the measure passed by Congress requires a $20,000 annual maintenance fund.

Satisfactory conditions also were expressed by the Nekoosa-Edwards Paper Co., Nekoosa, Wis., through reports submitted at the annual meeting. All of the directors were re-elected and the officers likewise. They are: L. M. Alexander, president and treasurer; John E. Alexander, first vice-president; Judson G. Rosebush, second vice-president; C. A. Jasperson, secretary, and J. W. Kibby, L. M. Hanks, F. J. Wood, Guy O. Babcock and J. B. Nash.

Plans and specifications are being prepared by government engineers for a new concrete and steel power dam at Kaukauna, Wis. Its cost will be approximately $150,000, according to Nelson Wightman, federal engineer. The old wooden dam at this point will be razed this spring and eight sluiceways will be built, as well as two large concrete spillways.

After seven years of unsatisfactory experiment with a water level in Lake Winnebago of 15 inches above the control dam at Menasha, Wis., an order has been issued by F. H. Payne, Assistant Secretary of War, restoring the level to 21¼ inches. The change came after cities of the lower

Fox river valley had gone through a season of extreme drought and lacked sufficient water for power and navigation, and for flushing the river to remove stagnation and stench. Lake Winnebago is the largest inland lake in the United States and the maintenance of a higher level means ample water at all seasons. Cities of the lower valley, principally Oshkosh and Fond du Lac, Wis., opposed the change and are now endeavoring to have the order rescinded.

Safety News

Efforts of employees of the Interlake Pulp and Paper Co., Appleton, Wis., a branch of the Consolidated Water Power and Paper Co., to finish the year 1930 without a lost-time accident were crowned with success. The mill came through with flying colors and no accident on record since February 16, 1930. This achievement helped considerably the new standing of the four Consolidated mills in safety. The total accident reduction was 50 per cent, despite extensive building operations, some rather hazardous. The Stevens Point mill has had only one accident in the same period. While the Biron mill did not fare so well, the employees completed seven perfect months in 1930 up to September 1.

Some of the paper-mill cities where schools were not held in the fall are starting safety schools at this time, to run until spring. Green Bay and Neenah have programs outlined. The Green Bay school is holding sectional sessions for paper and pulp mill employees only so their particular problems can be discussed. Speakers are to include W. F. Ashe, of the Thilmany Pulp and Paper Co., Franz Rosebush, of the Nekoosa-Edwards Paper Co., and M. G. Hoyman, of the Kimberly-Clark Corporation. The final banquet on March 4 will be presided over by J. M. Conway, president of the Hoberg Paper and Fibre Co. Elwood T. Bailey, of Los Angeles, Calif., gave the first address and was booked also for the first meeting at Neenah.

Among those assisting in the Neenah school are M. G. Hoyman, safety director of the Kimberly-Clark Corporation; Nathan Bergstrom, of Bergstrom Paper Co.; and Leo Schubart, treasurer of the Neenah Paper Co. Speakers besides Mr. Bailey include: Garrett Burgess, Buffalo, N. Y., subject, "Training Men for the Battle;" D. D. Fennell, Chicago, "Fundamentals of Safety;" F. M. Snyder, New York, "Keeping Ahead of the Headlines;" William J. H. Boetcker, Erie, Pa., "Horse Sense."

Arrangements also are completed for the annual meeting of the Fox River Valley and Lake Shore Safety Council at Fond du Lac, May 20. Preparations are being made for an attendance of 1,200 to 1,500. The plan of other years will be followed, dividing the conference into sections for each type of industry. Speakers are to be announced later.

Under a decision of the Wisconsin Railroad Commission, the Combined Locks Paper Company cannot supply its mill village of Combined Locks, Wis. with electric current. The company had been doing this for sometime, selling power to the South Shore Utility Co. Upon protest of the Wisconsin-Michigan Power Co. and the Kaukauna Municipal Electric Co., hearings were held and the order issued giving only the two complainants the right to sell power there.

On the basis of recommendations by George M. Curtis, examiner for the Interstate Commerce Commission, increased rates of four to six cents on waste paper and rags shipped to Wisconsin mills from New Orleans, La., and the Mississippi valley probably will not be increased. The increase was postponed from July 1, 1930 to February 1, 1931. Mills contend the materials are worthless unless they can reach a paper-mill and argue that the principle of conservation of waste is also important to consider.

Five heavy duty trucks have been purchased from the Four Wheel Drive Auto Co., Clintonville, Wis., by the Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis. The machines were delivered overland to Port Arthur, Ont., where they will be used to transport 60,000 cords of pulpwood from the forests for the Newaygo Timber Co., a consolidated subsidiary. They will be tried instead of teams and sleighs.

Forestry Activities

Roads, fire lanes and warehouses for equipment will be constructed in Wisconsin this winter and spring to the extent of $47,550 in improvement of federal forestry districts, according to E. W. Tinker, regional federal forester. This money is part of an appropriation of $169,000 released by the government to alleviate unemployment. About 100 men will be given work. The development includes the Moquah unit, near Ashland, Wis., the Flambeau unit, near Park Falls, Wis., and the Argonne unit, near Three Lakes, Wis. About $10,000 additional will be spent for a nursery tract of 20 acres near Rhinelander, Wis., where 10,000,000 seedlings will be produced annually.

The Nekoosa-Edwards Paper Co., Nekoosa, Wis., is planning to add 3,563 acres to its present total of 22,000 acres used for tree growing. A million and a half of seedlings will be planted this year. The new tract will be entered under the Wisconsin forestry law, which exempts it from property taxes until the timber is cut.

Another aid to reforestation is the action of Marinette county, Wis., in creating four county forests totalling 139,480 acres. The county is attempting to solve its problem of tax delinquency in this way.

Ward E. Black

Ward E. Black, sales manager for the Hoberg Paper and Fibre Co., Green Bay, Wis., passed away at his home in Green Bay, January 26, at the age of 39 years.

Mr. Black entered the sales department of the company 18 years ago and worked his way up to the position of general sales manager, which position he had filled most capably for the past five years.

The services were attended by a large number of friends and business acquaintances from other cities, among them being many men well-known in the paper industry.

Besides the widow and two children, Mr. Black is survived by his mother, sister and brother.

Articles of dissolution of the Lakeview Paper Company, formerly of Neenah, Wis., have been filed with the Wisconsin Secretary of State. The company formerly was owned by Sears, Roebuck & Co., and operated a mill at Neenah making catalogue paper. The Kimberly-Clark Corporation purchased the mill.

A new boiler plant was completed recently by the Munising Paper Co., Munising, Mich. It is seven stories high and is considered one of the largest power plants in a large area. It will produce 182,000 pounds of steam hourly, and the turbines generate 7,500 hp. for the paper mills. A pulverizing system for automatic feeding of boilers will consume 60,000 tons of coal yearly.

A complete bibliography on the subject of "Hydration," covering 100 titles and more than 50 authors is contained in a recent library bulletin of the Institute of Paper Chemistry at Lawrence college, Appleton, Wis. It was prepared by Harold W. Bialkowsky, a student, in line with a plan of the institute to announce everything of interest in certain subjects connected with the industry.

Frank L. Pearce

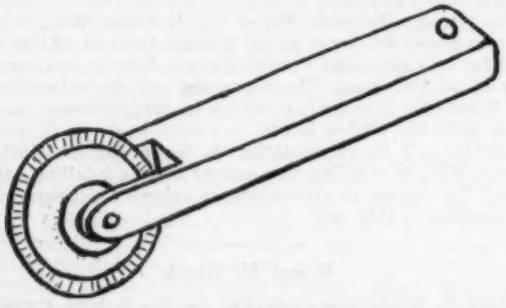
Frank L. Pearce, one of the founders of the Link-Belt Company, and a resident of Chicago for more than half a century passed away recently in Hollywood, California, shortly after arriving there for a visit with relatives.

Mr. Pearce was 68 years of age and had retired from business several years ago. He is survived by his son, Robert T. Pearce of Westfield, N. J., with whom he made his home.

Practical Helps for the Mill Man

Cutting an End

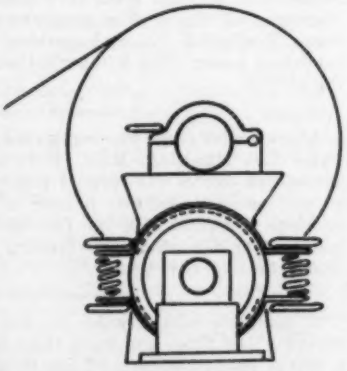
THE little device shown in the sketch is a desirable substitute for the third hand's or fourth hand's knife in cutting an end either at the calender or on the dryers. It is made from an old top slitter which has been worn too small



for use. A keen edge is put on the slitter as when it is used on the winder, except that there is a bevel on each side. This circular knife is set in a fairly long and substantial wooden handle. The tool held against the dryer or calenders cuts a smooth unbroken edge which has less tendency to tear in than one cut with the flat of a knife.

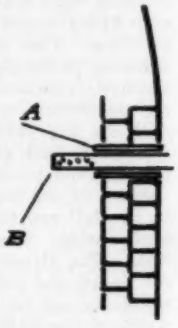
Additional Friction

AS some of the older machines are speeded up or in some of the mills where early installations of English or Pope reels were made, it is found when speeding up the winders there is not enough friction where the reel is big. The accompanying sketch shows an arrangement of a friction which will overcome this trouble. In place of the single strap encircling the friction drum with a single screw take-up, two screw take-ups are provided. The strap is of course cut in half and one part is on top and one on the bottom. This device gives an opportunity to put pressure on the friction strap at two places. The springs in the take-ups make the device more responsive when the time comes to slack off the friction as the reel becomes smaller. Splitting the strap in two places also eliminates trouble with "grabbing" when the reel gets smaller. Sometimes with a single take-up screw, the friction strap does not loosen up all the way around, and this applies too much tension to the paper, causing a snap-off on the winder. The spring at the take-up screw is a good device even if there is only one take-up screw. It makes the release of the friction more positive.



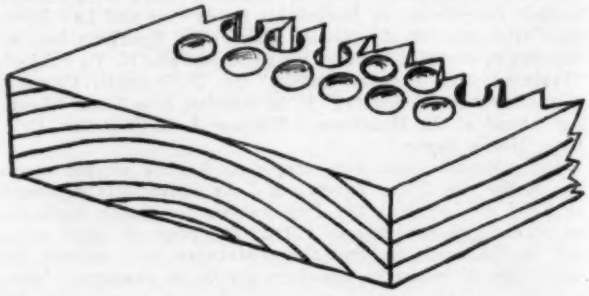
Using Chrome-Nickel Steel

CHROME-NICKEL steel—often spoken of as "stainless" steel—has come to stay in the paper business, especially in sulphite pulp mills. The accompanying sketch shows a strainer located in the side of a digester. This is where the liquor is taken from the digester to test for determining the progress of the cook. A mill which became sold on the idea of chrome-nickel steel decided to replace the strainer which projected into the digester, shown at (B), with the new steel. Also the bushing (A) made of phosphor bronze was retained, since it did not project into the digester or come in contact with the cooking liquor. Presently it was discovered that while that part of the strainer projecting into the digester was in perfect condition, the part inclosed in the bronze bushing was practically gone. This was remedied by using a chrome-nickel bushing. Evidently enough cooking liquor leaked in between the bushing and the strainer to set up galvanic action and the chrome-nickel steel was destroyed in this way. At any rate it seems unwise to use chrome-nickel steel and phosphor bronze together.



Putting on Suction Box Covers

ONE Superintendent drew this department's attention to the fact that there is a right and a wrong way up to the suction box covers. He says that the barked side of the wood should be placed so that it will be next to the wire as it runs.



He claims that suction box covers set in this way will last longer and have less tendency to groove under the action of the wire. It was also pointed out that in using wood on runways and platforms the planks should be set with the barked side uppermost and the platform will thus wear longer.

Open Area of Wire Cloth

SOMETIMES the paper mill superintendent likes to know the open area on a piece of wire cloth. The following method can be used. First calculate the closed area as follows:

N = numbers of wires in the warp
n = number of wires in the shoot
D = diameter of wires in the warp
d = diameter of wires in the shoot
then the closed area per sq. in.=ND(1–nd)+nd
then 1–closed area=open area per sq. in.

This gives a decimal fraction, say 0.30, which indicates 30 per cent of the area is open.

Slipping Wire

WHERE the superintendent feels that his wire may be slipping and there is a suction couch, it would be well for him to check his suction pumps. Sometimes it has been found that too many things are connected to one pump, or that the pump for the wire suction boxes can be changed with the couch pump to advantage.

ADVERTISING PAGES REMOVED

PACIFIC COAST

WASHINGTON

Inland Empire Gets Power Contract

The Inland Empire Paper Co., which operates a plant at Millwood, has finally entered into a contract for power with the Washington Water Power Co., which arranges for power service over a period of 25 years, subject to certain specifications.

According to terms of the contract any modification may be introduced at five-year intervals or the contract canceled under stated conditions at the option of either side. This provision would permit, it is pointed out, the development of previous plans of the Inland Empire Paper Co. to build its own power plant on the Spokane river in the vicinity of the paper-mill at Millwood. Considerable survey work was done on this proposed project and engineering activities have been noted in this connection for the past two years. Whether this private power development will be continued at the end of five years is a matter of conjecture.

The company's plant at Millwood is being continually improved and enlarged and promises to be an important factor in power consumption in the territory.

The Everett Pulp & Paper Co., Everett, started the new year by distributing to the coast jobbers a sample line of new book stock which is said to comprise improvement of high quality. This is one of the oldest pulp and paper-mills in the northwest.

Logging operations by the Crown Willamette Paper Co. are expected to be under way on or before March 1, when it is indicated that camps both at Cathlamet and at Young's river will become active after the winter's shut-down, providing no unusual conditions arise. About 450 men are employed in this work.

The Kelso Manufacturing Co., which was recently organized and capitalized for $25,000, is making plans to conduct pulp manufacturing adjacent to a sawmill. Its business is being conducted by Atwell & Moore, First National Bank building. C. C. Bashor and H. F. Fleetwood are interested in its promotion.

Infringement Proceedings Against Crown-Zellerbach

The California-Oregon Paper Co. filed suit January 14 in federal court, Tacoma, asking reimbursement of a sum equal to the cash profits of the Crown-Zellerbach Paper Co., of Camas, Wash., for a period of several years, and also asking that a court order be issued enjoining the defendant from continued manufacture, sale or handling of a certain specified brand of oiled paper.

The complaint charged that the plaintiff is now the assigned holder of United States patent letters issued in 1923 to Samuel Sparks for the oiled paper process and in 1926 to Louis Leadbetter for improvements to the mechanical equipment producing the paper. The complaint charged that the defendant firm has without notice appropriated the protected process necessary for the oiled paper production.

George Kuppler, a paper and pulp mill construction engineer of the firm of Chris Kuppler's Sons, Port Angeles, recently passed away of injuries received in an automobile accident while on his way to the new pulp mill of the Weyerhauser Timber Company, Longview, where his company had just started operations.

The mill at Bellingham formerly operated as the property of the San Juan Pulp Manufacturing Co. but recently owned and operated under the control of the Puget Sound Pulp & Timber Co., has been undergoing a program of repairs and additions. The screen room has been expanded and a new riffler system installed, besides other changes that are aimed at utilizing digester capacity to the fullest extent, according to officials. The plant has four digesters and has been making bleached sulphite pulp. It is expected to have the mill under production again sometime this month.

The Pacific Coast Paper Mills, Bellingham, which for the past two years has been declaring regular semi-annual dividends on shares of preferred stock, again voted this eight per cent dividend at a meeting held late last year, payable January 1. During the past year this mill, which manufactures towels and toilet tissue, made improvements requiring approximately $30,000, including the installation of two converting machines. Officers of the company are: President, J. J. Herb; vice-president and general manager, E. M. Herb; treasurer, P. J. Herb, and secretary V. A. Hughes.

C. W. Morden, general chairman of Pacific Coast Tappi, has appointed Carl E. Braun, of the Puget Sound Pulp & Timber Co., Everett, to head the committee for arrangements on the spring meeting of the Pacific coast section of the organization which is to be held in the latter city, probably early in April, the date not having been definitely decided as yet.

CALIFORNIA

Personnel Changes at Zellerbach Paper

The Zellerbach Paper Co., Los Angeles, announces changes effective with the new year, through which Ernest Ferris, who has been country sales manager, will now be in charge of the branch office at San Diego.

Clem Reis, who relinquished the country sales territory last year to reorganize the stationery department, has again returned to his former position and N. V. Horton has taken over the management of the stationery division.

The Paraffine Companies, Inc., Emeryville, have completed improvements at their plant which include the installation of a high-pressure steam-operated electric generating plant at a cost of about $400,000. This will be used both for supplying steam for manufacturing operations and for many demands for power and light which occur in moving materials for delivery. This plant has a turbine unit of the General Electric type, with Babcock & Wilcox water-wall boilers, the latter working under 450 pounds pressure.

Charles Frampton, recently superintendent of the Columbia River Paper Mills at Vancouver, Wash., is now superintendent of the plant of the California Fruit Wrapping Company at Pomona.

The Strathmore Paper Co., West Springfield, Mass., has announced the opening of a Pacific coast office at 1015 Balboa building, San Francisco, with Otto A. Holstrom in charge. This office will distribute to territory west of the Rocky mountains, handling lines of the Old Colony Envelope Co., of Westfield, Mass., and the Rising Paper Co., of Housatonic, Mass., both connected with the Strathmore Company.

Earl Cornwell, formerly city sales manager for the Butler Paper Co., of Chicago, has joined the city sales staff of the Zellerbach Paper Co., Los Angeles.

The Lane Paper Co., western representative of the Hampshire Paper Co., South Hadley Falls, Mass., has recently moved from 320 Omar street to 1256 Factory place, Los Angeles, where larger headquarters will be maintained.

The Coast Paper Box Co., 1244 South Produce street, has been organized by interests in Los Angeles, to operate a

Minton Vacuum Dryer in new bleached sulphite pulp mill of The Olympic Forest Products Company, Port Angeles, Washington. Equipped with over 700 Timken Bearings.

700 Timken Bearings
In This Minton Vacuum Dryer

The Minton Vacuum Dryer illustrated above, forms part of the new bleached sulphite pulp machine installed in the new pulp mill of The Olympic Forest Products Company, Port Angeles, Washington.

It was designed by the Minton Vacuum Dryer Corporation, Greenwich, Conn., and built by Rice, Barton and Fales, Inc., Worcester, Mass., who engineered and installed the complete machine. It has a capacity of 170 tons of pulp per day.

All of the dryer and felt rolls are mounted on Timken Bearings, a total of 700 being used, exclusive of those in the Dodge-Timken Pillow Blocks which support the drive shafts.

In addition, the fourdrinier and press section of this pulp machine are completely Timken Bearing Equipped, as also are the Westinghouse-Nuttall Speed Reducers through which the main drive is taken.

The entire machine is thus thoroughly protected against friction, lubrication troubles, misalignment and thrust-radial loads, with many extra years of economical service assured.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

plant for the manufacture of paper containers and boxboard specialties. C. C. Barry and Sayles A. Sands, 1835 Garfield place, are the prime promoters of the company.

New Paper Trade Conference Secretary

H. Arthur Dunn, attorney of San Francisco, a man well informed on problems of the paper industry, has been appointed secretary of the Paper Trade Conference to fill the vacancy caused by the recent death of Charles Kahn. The committee appointed late last year to consider a candidate for this position, consisted of M. H. Higgins, chairman, Cutler Bonestell, Thomas O'Keefe, George Paganini and Ed A. Doran.

Mr. Dunn has retained Miss Hildegard Wahl, formerly assistant to Mr. Kahn, to continue as assistant in the office. New headquarters are at 311 California street.

F. X. Lejeal has joined the sales force of the Pelican Paper Co., San Francisco, of which J. A. Watson is sales manager.

The Stacey Engineering Company, which includes The Connersville Blower Company, Inc., The P. H. & F. M. Roots Company, The Wilbraham-Green Blower Company and The Stacey Bros. Gas Construction Company, has opened a branch office at 235 Montgomery street in the Russ building, San Francisco, California. E. A. McCallum has been appointed district manager.

OREGON

The Western Waxed Paper Co. will make 400,000 pounds of bread wrappers for the Continental Baking Company at its plant in North Portland this year, having just signed a contract to supply the plants of the baking company at Portland, Seattle and Spokane, according to E. C. Bogren, manager of the Western Waxed Paper Company's plant.

Paul Hass, recently superintendent of the Fir-Tex Insulating Board plant at St. Helens, has resigned effective January 1. He has been connected with the northwest paper industry for sometime, having at one time been superintendent of the Hawley Pulp & Paper Co., Oregon City.

Chas. K. Spaulding, president of the Spaulding Pulp & Paper Co., Newberg, is taking an active part in legislative matters as recently appointed senator from Marion county. He has been made chairman of the committee on public buildings, vice-chairman of the committee on public buildings and penal institutions, and was also made a member of the game committee, the committee on mining and the ways and means committee. Besides his interest in pulp and paper, Senator Spaulding is also one of the leading lumbermen in the northwest.

B. T. McBain, pulp and paper-mill consulting engineer, who has been spending sometime in the East, has been back in Portland for a limited stay, returning again to New York for the annual convention of the American Pulp & Paper association. While in his home state he spent sometime at legislative sessions in Salem.

E. G. Drew, representative for the J. O. Ross Engineering Corporation and the John Waldron Corporation, with offices in Portland, attended the meeting of the J. O. Ross Engineering Company in New York early this year.

The Smith and Valley Iron Works of Portland and the Valley Iron Works of Appleton, Wis., made simultaneous announcement on January 1 that the contract recently existing between the two concerns has been terminated. This contract formerly provided for equipment of the Valley Iron Works of Wisconsin to be made in the plant of the Portland company when it was to be used in this territory. Both firms will hereafter make and distribute their own lines.

A direct mail exhibit chosen from 234 outstanding campaigns from all over the United States, has been on display at the Portland office of the Zellerbach Paper Co. with a view to stimulating larger use of stationery for this purpose.

SOUTHERN

R. H. Laftman Leaves Bogalusa

R. H. Laftman, for 12 years connected with the Bogalusa Paper Company, Inc., Bogalusa, La., as general manager, and for the last two years vice-president, has tendered his resignation, effective April 1.

Mr. Laftman is very well-known in the industry. He is now vice-president of the Technical Association of the Pulp and Paper Industry and has done much to build up this organization. In addition to his work for Tappi, he has served as chairman of the Advisory Committee to the Forest Products Laboratory at Madison, Wis., and is a strong supporter of research activities in the industry, being responsible for the excellent research laboratories of the Bogalusa Paper Company which include a good sized paper machine, as well as a complete semi-plant pulping unit.

Mr. Laftman was superintendent of the Southern Paper Company at Moss Point, Miss. from 1911 to 1916. From 1916 to 1918 he was general superintendent of the Chesapeake Pulp and Paper Company at West Point, Va. During the War, he was assistant superintendent of the cotton purification plant of the Hercules Powder Company and the United States Government Powder Plant at Nitro, West Virginia.

M. E. Cody, who entered the employ of the company about 18 months ago to assist in the construction and erection of the new additions to the Bogalusa plant has been made general manager to succeed Mr. Laftman. He has a successful record, having spent the five years previous to coming to Bogalusa at Nashville, Tenn., where he built and operated a large mill where paper was manufactured from chestnut waste. Prior to that he was for several years associated with the National Paper Products Co., of California.

The Brown Paper mill, of West Monroe, La., is operating at full blast again after a three-week layoff on account of defective machinery, according to officials of the plant. The necessary reparations were made in order that the four units of machinery assume capacity operation. While the machine crews are busily engaged in keeping the machinery of the units functioning, the reforestation department is preparing to take care of whatever reforesting will be demanded of the timber tracts of the corporation.

Taxpayers of Bogalusa had the first opportunity of any city in the state of Louisiana to vote upon the tax exemption of new industries under the new statute, and by an overwhelming majority voted to exempt from taxation for a period of five years the four new additions to the Bogalusa Paper Company, which represent an investment of several hundred thousand dollars, and the contemplated enlargement of the plant of the Union Bag Company. The vote in favor of exemption was 841, against 18. The vote in tax assessment was, for $1,600,000; against, $31,000.

Plans and specifications are now being completed and will be ready to be placed on the market for general contract bids by A. Suter, construction engineer for the Bogalusa Paper Co., Bogalusa, for the construction of a new one-story, 72x83-foot, reinforced concrete steel and brick addition to the company's paper plant at Bogalusa, La., according to announcement made by company officials. The proposed new structure will have a reinforced concrete foundation, built-up composition roof, structural steel frame, brick exterior, steel sash, sheet metal work, painting, glazing, concrete flooring, elec-

MERCO

HYDRAULIC LIFTING OF PLUG ASSURES UNIFORM DISTRIBUTION OF LUBRICANT . . .

It is of utmost importance that a uniform distribution of lubricant be obtained in a lubricated valve. Otherwise, channels may remain unlubricated, causing leaks.

Positive uniform distribution of special "Merco" lubricant is achieved in the Nordstrom Valve every time the plug is lifted by hydraulic pressure in the operation of the patented Nordstrom method of "Sealdport" Lubrication. This lifting of the plug separates the seating surfaces so that a uniform distribution of lubricant can be obtained. This not only seals the valve tight against leaks but also protects the metal surfaces against wear.

Cup grease should never be used in Nordstrom Valves. For the most efficient service, always use "Merco" Lubricant, prepared especially for Nordstrom Valves. There is a "Merco" Lubricant for every valve service and our engineers will gladly recommend the lubricant best adapted to your requirements.

For tight pipe joints, always use "Merco" Pipe Compound. Easy to apply. Economical to use. Ask for latest Catalog.

ALL CHANNELS ARE LUBRICATED

VALVE IS SEALED TIGHT AGAINST LEAKS

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Buffalo - Genesee Bldg.
Charleston, W. Va. - Kanawha Valley Bldg.
Chicago - 176 W. Adams St.
Dallas - Magnolia Bldg.
Detroit - 2848 West Grand Blvd.
El Paso - 111 So. Virginia St.
Houston - Petroleum Bldg.
Los Angeles - 522 San Pedro St.
New Orleans - Masonic Bldg.
New York - 11 W. 42nd St.
Pittsburgh - Clark Bldg.
St. Louis - 317 N. Eleventh St.
San Francisco - 582 Howard St.

Agencies:
Saginaw - Arthur C. Beckert, 112 Durand St.
Salt Lake City - National Equipment Co., 161 West 2nd South St.
Tulsa - R. V. Bixsey & Company, 518 S. Trenton Street

Denver - Republic Supply Company.
Honolulu - E. A. Jones & Company, Ltd.
Philadelphia - Power & Mining Machinery Co., 1600 Arch St.
Seattle - Pratt & Gregg Sprague, Wilson & Company.

Factories in U. S. - Oakland, Calif., and Butterfly, N. J.
Factories in Canada - Montreal, Toronto, Winnipeg, Vancouver. (Also Sydney, N.S.)

Canada - Fraser Bros., Ltd., Montreal, Toronto, Winnipeg, Vancouver.
England - Audley Engineering Co., Ltd., Newport, Mon.
Buenos Aires, Argentina - General Electric Soc. Anon., Victoria 618 Esq. Pero.

NORDSTROM VALVES

THE PERFECT APPLICATION OF A PRINCIPLE

tric wiring, plumbing, etc. The new plant addition will cost approximately $20,000.

U. S. Gypsum Buys Greenville Plant

The purchase of the insulating board division of the Chicago Mill and Lumber Company by the U. S. Gypsum Company has been completed, and the insulating board mill at Greenville, Miss., which was built about one year ago at a cost of $2,000,000 is now being operated by the new owners.

The plant is under the direction of J. R. Massey, manager, and will operate on full-time schedule.

Pulpwood was said to have started its journey to Panama City, Fla., 86 miles south of Dothan to be used in the paper manufacturing plant of the Southern Kraft Corp., just being completed. It is estimated that by April 1, the large new docks will be completed, which will permit the largest ships to land there.

❖ OHIO ❖

Munger Buys Old Ohio Paper Plant

The former plant of the Ohio Paper Co. at Miamisburg, which has been operated as a unit of the American Asphalt Roof Corporation for the past 18 months, under a lease, has been purchased by Robert P. Munger, formerly general manager of the American Asphalt Roof Co. and his brother-in-law, Dan H. Sprecker of Miamisburg. The plant was one of the oldest industries of Miamisburg and is located on North Main St.

It is announced that the plant will be employed in the manufacture of asphalt roofing and will be started soon with 35 employes.

Industry Shows Good Employment Rating

The Bureau of Business Research of Ohio State University in a bulletin covering employment in many Ohio industries, shows that there was an increase of four per cent in December employment over November in the paper industry. But December employment was six per cent less than that of December, 1929. The December increase of four per cent compares favorably with the five-year average stability shown in December from November.

Average employment in the paper industry in Ohio during 1930 was one per cent greater than during 1929. This is unusual in the larger industries as most of them showed average declines in 1930 employment over the previous year of from ten to 25 per cent.

Personnel Changes at Circleville Plant

A number of changes have been made in the personnel of the Circleville plant of the Container Corporation of America, which has general offices in Chicago.

A. C. Moore, who has been superintendent of the plant for the past four years will be succeeded by Norman C. Cooper, who has been mill manager of the company's plant at Kokomo, Ind. The new superintendent is expected to take up his duties at once. Mr. Moore announces that his future plans are indefinite. Sydney Beechy, who has been shipping clerk and safety director of the plant, and James Offenbacher, chemist, will also leave the plant. Successors to these positions have not been announced.

Two Safety Records

On November 26 of last year, the Crystal Tissue Co. of Middletown, completed a full year without a lost-time accident, according to the recent report of the Division of Safety and Hygiene of the Ohio Industrial Commission. E. E. Grant, director of Personnel of the Company declared that he was very much elated over the record. The company started on Thanksgiving to make the record, two years without a lost-time accident.

Another outstanding record in accident prevention was made by the Champion Coated Paper Co., Hamilton, according to a report of the Division of Safety and Hygiene of the Ohio Industrial Commission. The concern had a no-accident month in May and considering the number of its personnel and the hazards involved this record is considered outstanding.

But this was only a start as the company with 2,253 employees went through October and November without an accident and also well through December before there was a mishap. The record in October, November and December totaled 806,509 man hours without a lost-time accident.

The current issue of **Champion News**, the house organ contains a story covering this record, written by Superintendents A. O. Rolfe, Charles Soule and Dr. Louis H. Frechtling.

Miami Supers Have Interesting Meeting

The Miami Valley Division of the Pulp and Paper Mill Superintendents Association met at Miamisburg, Ohio, January 11, at 6:30 p. m. with 42 in attendance. Preceding the meeting a sumptuous dinner was served.

H. E. Fritz, of The B. F. Goodrich Rubber Company, Akron, Ohio, gave an illustrated talk on "New Uses and Developments in the Rubber Industry Pertaining to Paper Mills."

John S. Gulledge, of The B. F. Goodrich Rubber Company, Cincinnati representative, described the process of making "Rubber Covered Rolls and Mechanical Goods."

The J. E. Rhoads & Sons, represented by W. J. Coppoch, displayed numerous charts with curves of various kinds of belts, and used as his subject of discussion, "Power Transmission."

The next meeting will be held in Hamilton, Ohio, on February 14. The speaker and place to be decided by a committee.

A Unique Unemployment Plan

The City of Hamilton, Ohio, has worked out a plan to relieve its unemployed citizens. A campaign has been launched to draw weekly contributions from men and women who are regularly employed, this fund to be used as wages for public work under the administration of the city manager. The work has met with whole-hearted and spontaneous response, and at the present writing, total weekly contributions from all sources amount to $3,300. The percentage of income to be pledged is determined by the contributor—2 per cent in some cases; in others, 2½ per cent.

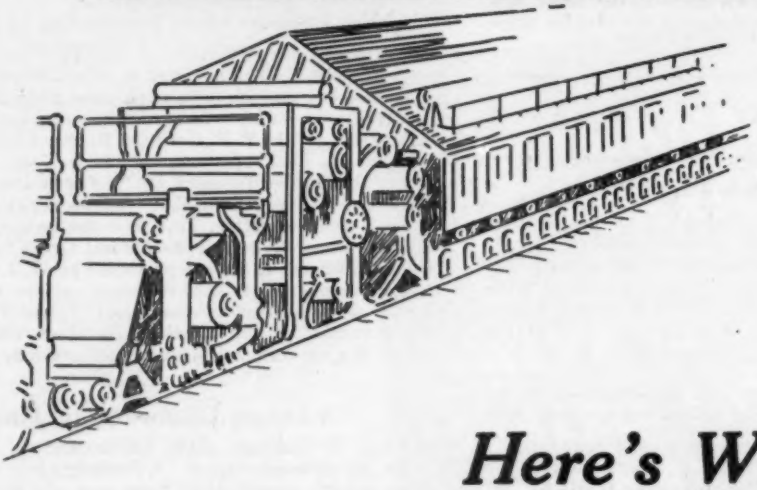
This work is in charge of an Unemployment Committee, and the matter has been brought to the attention of citizens of Hamilton in an explanatory letter by H. L. Kutter, a member of the committee and president of the Black-Clawson Co., well-known manufacturers of paper-mill machinery. The company and its employees have given splendid co-operation and participation in this movement.

The money paid into this fund is used for civic improvements, giving the unemployed men jobs—it is not doled out as charity. Care has been taken to distribute the work on an equitable basis. The individual status of each applicant for work is carefully investigated before he is certified as being eligible for a job. Only married men are employed, and men with large families are given more work than those whose families are small. Five days per week is the maximum, two the minimum.

A tour around the City of Hamilton would reveal the many concrete evidences of the fact that the city and its citizens are receiving full money's worth in the practical value of the work which is being done. The old canal bed, long an eyesore and a menace to the public health has been cleaned. Important improvements have been made in streets and parks. Public buildings have been cleaned and renovated. Indirectly, every citizen will benefit from this work, not only in having a cleaner, better city, but in actual savings in taxes.

Announcement is made by the Continental Paper and Bag Corporation that H. T. Rosenfeld, formerly sales manager of the Hudson Bag Company has been appointed as sales manager of the bag division.

There Will Be A Briner Economizer On This Machine Before Next Winter



Here's Why:—

Winter weather and increased heating requirements for the fresh air supply is already taxing every ton of paper produced with an excessive steam cost.

Mills in the same locality and of equal capacity are producing paper with fully 2,000 pounds less steam per ton. This entire saving is being secured through full utilization of the heat units in waste vapor, reclaimed by a Briner Economizer.

Using fully 2,000 pounds of steam per ton of paper to produce the equivalent amount of heat that can be secured from waste vapor, puts a mill under an unnecessary and burdensome handicap.

There will be a Briner Economizer on this machine before next winter.

If you are being burdened with excessive steam costs, request our engineers to analyze your equipment requirements now while your cold weather problem prevails. Installation can be conveniently made later.

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ROSS SYSTEMS
HEATING—VENTILATING—DRYING

Canadian News

Review of the Forest Situation

The Hon. Thomas G. Murphy, Minister of the Interior, in a New Year review of the forest situation in Canada, recently said that, since the United States and Great Britain, Canada's two principal markets for forest products, are open to all countries, the advent of Russian lumber and pulpwood into those markets, though as yet in comparatively small quantities, has had a decidedly depressing effect on our export trade.

While our domestic consumption provides a market for about 70 per cent of the total amount of wood cut, we have had during recent years a surplus equivalent to about 1,200 million cubic feet for export. The total value of exports of forest products, exclusive of printed matter, during the years 1925-29 has averaged $283,356,156 and as the imports averaged only $36,467,506, there has therefore been an average favorable balance of trade of $246,879,650, of which 83.6 per cent occurred in our trade with the United States and 6.7 per cent with Great Britain. The maintenance of a stable market for this exportable surplus in forest products as an offset to imports of other commodities is therefore of vital importance to Canada.

During the last fifty years the world consumption of paper has increased from 1,000,000 tons to 23,000,000 tons, and with the increase in education and extended use of paper for purposes other than printing, there is every reason to expect an accelerated increase in the demand for paper as soon as the present temporary trade depression is passed. Canada, of all countries, is the most advantageously situated to meet the increased world demand for softwood lumber and paper to which every indication points. From our Pacific and Atlantic ports every important market can be reached and the central portion of the Dominion is close to and connected by rail with the great centers of consumption in the central States.

The Forest Service of the Department of the Interior is at present engaged in a comprehensive inventory of the forest resources in co-operation with the various provincial authorities, and it is also conducting in each province an extensive survey of the reproduction and rate of growth of the forests. When these two projects are completed, reliable data will be available upon which both governments and industries can formulate forest policies devised to ensure continuous production through regulation of depletion of the forest from all causes to conform with annual growth. The results of the surveys concluded to date show that, properly protected and managed, the productive and accessible forest land in Canada is capable of growing much more timber than is now being used. If this preliminary finding is substantiated by subsequent investigations, we may rest assured that the permanence of the industries using wood as a raw material will be contingent only on proper protection and management of our great forest heritage.

Urge Prohibition of More Newsprint Mills

At the annual meeting of the Royal Bank of Canada, which was held in Montreal on January 8, the president, Sir Herbert Holt, commented on the present situation of the Canadian newsprint industry. Owing to his outstanding position in the general financial life of the country, and more particularly of the industry in question, his comments are of more than passing interest, and are worth quoting verbatim:

"The prosperity of the Canadian newsprint industry is of vital importance to our national economy, for newsprint is one of Canada's major industries, employing, in 1929, 33,584 persons (exclusive of those who were employed in the woods), receiving wages of over $50,000,000. Newsprint is one of Canada's principal exports, bringing into the country about $150,000,000 annually and contributing largely to our balance of trade with other nations. The present situation in the industry is most unsatisfactory, largely caused by unwise overexpansion and the reduced demand brought about by world-wide depression. I think it would be advisable for the Provincial Governments to prohibit further installations until the demand catches up with the present supply. They should also insist on all Canadian companies operating at the same percentage of capacity. This would do away with futile competition and useless price-cutting and leave the industry in a substantially stronger position."

Industry's Problems Are Financial

R. O. Sweezey, head of the Beauharnois Power Co., and director of several of the large Canadian newsprint producers, was elected president of the Canadian Forestry Association at its annual meeting, which was held in Montreal on January 23. In the course of an address entitled "A Look Ahead," Mr. Sweezey discussed the future of the Canadian paper industry.

"It is one of the essentials," Mr. Sweezey said, "that the operation of our forests should result in commercial profits adequate to the investments. There are numerous well-defined causes for the present state of the lumber industry. Other equally well-defined causes are in the making today in regard to conditions harassing the paper industry. If the obvious remedies are not applied at once, the vast potential wealth of our great interior may be subjected to difficulties that will require many discouraging years to overtake, and the financial losses may be appalling. These suggestions are not directed so much to the technical problems of forestry, but are aimed at the financial and commercial side. The time has now come for the most intimate form of physical and financial co-operation between pulp and paper manufacturers who are the chief custodians of the forests in Canada. We may expect such unity of effort to result in important consolidations that will have for their object not only the conservation of immense financial investments and the good will of powerful customers, but the more rapid and thorough attainment of the objects for which this Association has been striving for a quarter of a century."

Large Increase in Hydroelectric Power

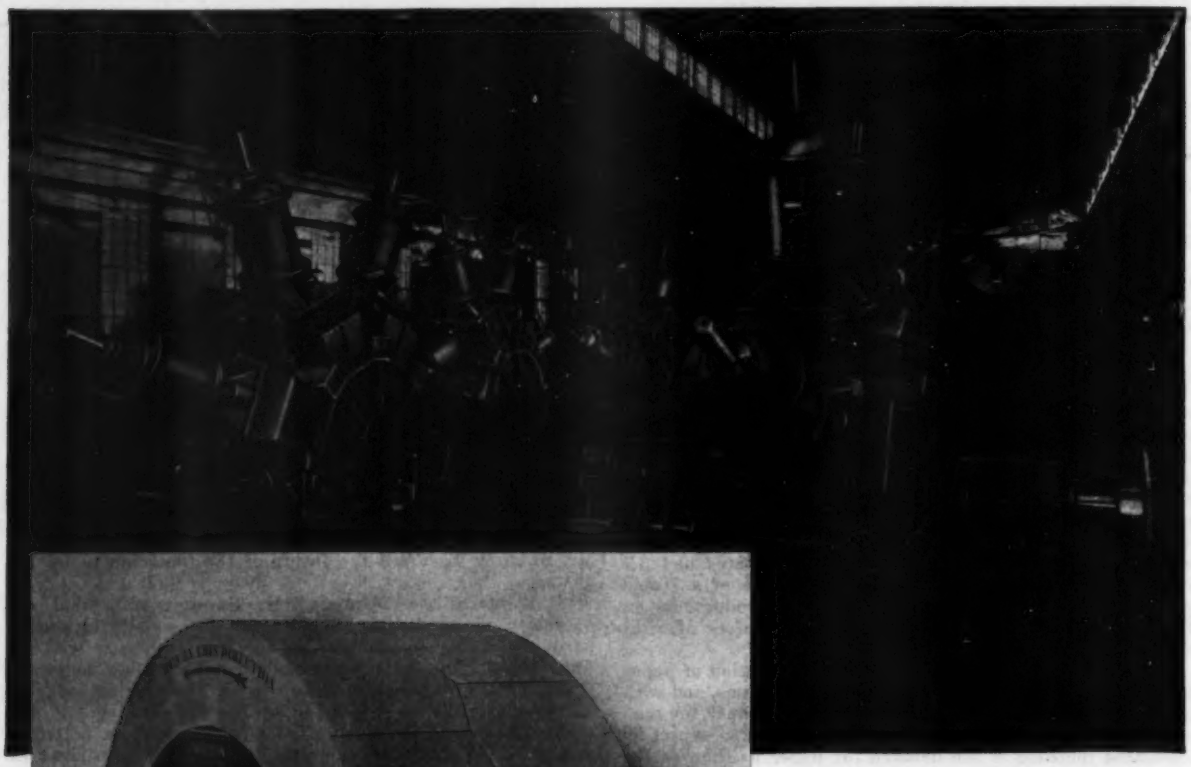
Water power development, both in the construction of new plants and the extension of existing ones, was maintained at a high level throughout Canada during 1930. According to a compilation prepared by the Department of the Interior, new installations brought into operation during 1930 aggregated 397,850 hp., bringing the total installation for the whole Dominion to a figure of 6,125,000 hp. at the end of the year.

Construction is active, also, on a number of undertakings throughout the country, several of which are of outstanding magnitude, and with the completion of these during the next two or three years, more than 1,500,000 hp. will be added to the Dominion's total.

Further Decrease in Newsprint Production

During the month of December Canadian mills produced 184,755 tons of newsprint, which contrasts with 201,703 tons in November and 213,817 tons in October. Equally unsatisfactory was the ratio of operations, which in that month dropped to 59.5 per cent of rated capacity, contrasting with 67.6 per cent in November, and bringing the ratio for the whole year of 1930 to 69.3 per cent of capacity, as compared with 85.5 per cent in 1929. Shipments from the Canadian mills in December were higher than output, amounting to 188,845 tons.

The total production for the year 1930 was 2,499,631 tons, a reduction of 229,196 tons as compared with the 1929 output



For Pocket Grinders, Too—

The benefits of the Norton Pulpstone

Available in all of the necessary sizes for pocket grinders and in all of the necessary grits for producing various types of pulp—rotogravure, catalog, newsprint, board.

Norton Company—Worcester, Mass.

Canadian trade supplied from Canadian plant.

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NORTON
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Refractories - Floor
and Stair Tiles

of 2,728,827 tons. The 1930 total represented a decline of 8.4 per cent, therefore representing 91.6 per cent of the 1929 total. The average operating ratio for 1930 was 69.3 per cent, as compared with 85.5 for 1929. The output in 1930, however, was up 118,500 tons above that of 1928, and up over 400,000 tons above the 1927 total.

Canadian exports of pulp and paper in December were valued at $15,393,358, an increase of $2,019,750 over the previous month but $1,427,522 lower than in December, 1929. The exports for the year 1930 were valued at $177,500,222, a decline of $20,786,884 from the 1929 figure. During the same period 1,330,466 cords of pulpwood, valued at $13,611,617 were exported from Canada, increases of 35,471 cords and $296,879 over the corresponding 1929 figures.

Newfoundland Mills Operating at Capacity

The Hon. Peter Cashin, Minister of Customs in Newfoundland, in the course of an interview in Montreal last month, stated that the newsprint mills in Newfoundland were running at capacity, while Canadian mills were operating only at 60 per cent of their maximum.

In explanation of this, he said that one of the mills was owned by the Rothermere interests and consequently had an assured market with the Rothermere papers. The other belonged to the International Paper Co. There may be some difference in labor costs, which may explain the fact that they are operating fully. Moreover, Newfoundland is expecting that a third mill will be built somewhere along its shores, the minister declared. It is to be the largest paper mill in the world. He refused to reveal the name of the future operators. He added that, in his opinion, the trouble in Canada was clearly one of overexpansion.

Montreal has been selected for the convention of the International Brotherhood of Paper Makers, which will convene on March 3 at the Queens Hotel in that city. The convention will be attended by about 200 delegates from the paper makers' union, while the convention of the Pulp, Sulphite and Paper Mill Workers' International union, held in the same city at the same time will bring another 200 delegates. William Green, president of the American Federation of Labor, has consented to address a joint gathering of the two organizations during the convention.

❖ QUEBEC ❖

Canada Power and Paper Wins Freight Rate Case

Under a ruling of the Interstate Commerce Commission, Canada Power and Paper Corp. and the Cleveland Co., a corporation publishing the Cleveland News, at Cleveland, Ohio, have been successful in receiving an award of reparation from the New York Central and other railways on six carloads of pulpboard paper winding cores shipped from Cleveland to Shawinigan Falls between August 26, 1926 and April 11, 1927.

Charges were collected to the basis of a joint through commodity rate of 38.5 cents per 100 pounds in effect from Chicago, Ill., to Shawinigan Falls, which was applicable to Cleveland under an intermediate rule. The paper companies sought reparation to the basis of a rate of 32 cents, which was granted, and the latter rate ordered established by February 3, 1931. The reparation awarded amounted to $160.16 with interest.

Bids Called for Hydro Plant

The Maclaren-Quebec Power Co., a subsidiary of the James Maclaren Co., Ltd., has completed the 90,000-hp. initial installation of its High Falls plant on the Lièvre river. The ultimate development is to be 120,000 hp.

The company has called for bids on general contract for the construction of another 120,000-hp. plant on the Lièvre river, between Buckingham and Masson, to be used primarily for service at its Buckingham pulp and newsprint mills. The project will include a transmission line and is reported to cost over $6,000,000 with power dam, equipment, etc. It is understood that awards will be made early in the year. H. K. Ferguson, of New York, is engineer in charge.

St. Regis of Canada Makes Good Showing

The estimated earnings for 1930 of the St. Regis Paper Co. of Canada are $3.00 per share. The reason for this good showing is explained by its close connection with the St. Regis Paper Co., New York, which controls practically 98 per cent of the stock. The parent organization derives most of its income from public utility holdings and the well established Bates International Bag Co.

Engaged in logging operations, the St. Regis Paper Co. of Canada, Ltd., owns and leases timber property in Quebec Province estimated to contain 2,500,000 cords of pulpwood. The entire pulpwood output of the company is purchased under contract by the parent organization in New York.

Research Department for Price Bros.

Price Bros. & Co. have established a research department to deal with problems connected with the company's various lines of products. It is understood that for the time being the research department will be engaged in work in connection with the new board mill of the Donnacona Paper Co., a Price subsidiary. Early in 1929 Donnacona undertook the construction of an insulating board mill having a daily capacity of 150,000 square feet, which was brought into operation early in 1930. Later on it is expected that the research laboratory will turn its attention to the pulp and paper end of the business.

W. P. Grant, M.L.A. for Champlain, has presented a bill before the Quebec Legislative Assembly to ratify a by-law of the city of Grand'Mère, which by-law provides for a fixed valuation of the property of the Laurentide Co. at $6,000,000 and of the Shawinigan Water and Power Co. property at the same amount. This arrangement is to last for a period of ten years from August 1, 1931.

An important event in the hydroelectric power development of Canada is the recently completed installation of a new 77,000-hp. hydroelectric unit in the plant of the Alcoa Power Co., on the Saguenay river. The unit is of all-Canadian manufacture, consisting of an electric generator manufactured by the Canadian Westinghouse Co. of Hamilton, Ont., and a water wheel by the Smith-Inglis Co. of Toronto. The machines designed by Canadian engineers and constructed by Canadian workmen constitute the world's largest unit to be placed in operation to date.

The numerous friends of O. F. Bryant, Secretary of the Technical Section of the Canadian Pulp and Paper Association, will be pleased to hear that he is recovering rapidly from his recent illness. He is still confined to his room, but is now allowed to see an occasional visitor.

Shareholders of St. Lawrence Paper Co. have just received notification that over 95 per cent of the common shares of this company have been exchanged for the common shares of St. Lawrence Corp. Trading in St. Lawrence Paper has practically ceased and application has been made to the Montreal and Toronto exchanges to withdraw that stock from listing. Brompton common shareholders have also been notified that the same step has been taken regarding that stock, as over 98 per cent of Brompton common has been exchanged for class A preferred of St. Lawrence Corp.

The Bonaventure Pulp and Paper Co., operating a 140-ton unbleached sulphite mill at Chandler, on the Quebec-New Brunswick border, was shut down at the beginning of the year owing to the disturbed condition in the pulp and paper markets.

—fine Spray

Try a dozen Buffalo Nozzles for breaking up foam in the head boxes—soft, fine, uniform spray—that's what these Buffalo Nozzles supply. Hundreds of mills use them because they really are non-clogging—they deliver a uniform spray—and they operate on pressures as low as 15 lbs.

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In Canada: CANADIAN BLOWER & FORGE CO., LTD., KITCHENER, ONTARIO

"Buffalo" non-clogging **Spray Nozzles**

ONTARIO

Dryden Operating Profitably

At the annual meeting of Dryden Paper Co., last month, the annual report and statement were adopted and the entire board of directors and officers were returned to office without change.

President J. H. A. Acer stated that operations at the mill during the past three months had produced revenue more than covering bond interest. A bright feature of the immediate future, he said, was found in the development of some new bags which will be supplied by Dryden through the Bates Valve Bag Co. These bags will take the form of liners for flour and sugar bags. Sales campaigns, the president stated, were about to be started in the United States and Canada for these new products.

The grain situation in the West, Mr. Acer said, was the main factor in the company's present situation. It was pointed out that the company also supplies the wrapping paper for some stores in Winnipeg, and that this business had fallen off only about 12 per cent during the year, which was a smaller decrease than had been anticipated.

The company at the present time is not cutting its own wood, but this is being purchased already cut on a more economical basis. The stocks of wood are sufficient to last the company for sometime at the current rate of operations.

To bring home the lesson of buying produced-in-Canada goods, Dominion Boxboards, Ltd., and the Dominion Envelope and Carton Co., two associated Toronto industries, with branch plants at Montreal, Winnipeg and Edmonton, have in operation a novel plan. They induced their employees to pledge themselves and their families to buy goods made in the Dominion and put up in Canadian-made packages manufactured from Canadian boxboard. The pledge cards, when signed by the employees, are mailed by the company to their home address, with the object of being hung up in the kitchens of the employees' homes as perpetual reminders to the household "purchasing agents."

The Thorold newsprint mill of the Ontario Paper Co., owned by the **Chicago Tribune**, is spending $500,000 on improvements. Over half of this amount is to be spent for increasing the capacity of the mill and reducing costs. Improvements in operation will require $141,000 and maintenance and construction of buildings and safety measures nearly $92,000 more. The screening equipment will be revamped, and some $120,000 will be spent on additional grinding equipment.

Erection of a proposed new factory in Hamilton for Canadian Corrugating and Container Co. has been deferred for the present. The company's existing property has been taken over by a railway company.

The earnings of Canadian Wirebound Boxes, Ltd., for the first seven months of its current fiscal year, up to November 30, 1930, amounted to approximately $125,000. The new corrugating division in the Toronto plant is now in operation and this gives the company a complete unit both in Toronto and Montreal for corrugated containers and packing and wirebound boxes. In addition, the concern has purchased outright exclusive rights for all Canada for the Pfister patented ironbound fiber box. This gives the company control for Canada of all the important patented shipping containers.

Never in the history of the lumbering industry in Western Ontario have the Algoma lumber camps broken so early as was the case this year. A number of the camps left the woods last month, some of them early in the month. Moreover, the camps were fewer in number than usual this winter.

Warns of Possible Power Shortage

According to F. A. Gaby, chief engineer of the Ontario Hydro-Electric Power Commission, in an official statement recently issued, the provision by the Commission to increase the total aggregate load from 1,260,000 hp. to 1,900,000 hp. is an expansion quite justified when all existing factors are taken into consideration. Furthermore, Mr. Gaby has given warning that unless preparations are put under way to develop new sources of power, Ontario will be faced with a serious shortage of electrical energy when business conditions swing back to normal.

In the following Mr. Gaby summarizes his calculations and conclusions: "On the basis of past experience, it would appear that the program under way will take care of about five years of future demand, possibly but four years. Furthermore, if no additional provisions for power are made, and it takes, say, from two to five years to make effective the development of large power supplies, it is obvious that with a return of normal business conditions—which all the nations of the world are hoping for—Ontario in five years would be confronted with a power shortage. It will, therefore, be necessary to watch closely the growth in load and other factors, in order, during the next few years, to start still further preparations designed to cope with demand, which, it is believed, will inevitably arise in the period following the four or five years already provided for."

At a meeting of the directors of Alliance Paper Mills held last month, Harold Crabtree was appointed president of the company, in succession to C. Howard Smith, whose resignation was regretfully received. George W. Pauline, managing director, and L. E. Fleck, assistant managing director, were appointed vice-presidents. Both Mr. Pauline and Mr. Fleck will continue to hold their former executive positions, the last named being also in charge of manufacture at all the company's mills. E. Howard Smith, son of the retiring president, was appointed to fill the vacancy on the board of directors occasioned by the resignation of his father.

Abitibi Jottings

To obviate the possibility of a power shortage in the North Bay and Nipissing district, the Hydro-Electric Power Commission has made arrangements with the Abitibi Power and Paper Co. for a large supply of electrical power from the company's plant at Sturgeon Falls. The threatened shortage was attributed to an exceptionally dry season in the summer and fall.

At a recent meeting of the city council of Port Arthur that body, by a unanimous vote and on the suggestion of the Paper Makers' Union, the Trades and Labor Council and the Ratepayers' Association, decided to demand of the Ontario Government that it call for enforcement of the agreement covering operation of the Thunder Bay Paper mill, which is owned jointly by the Abitibi Power and Paper Co. and Canada Power and Paper Corp. The complaint of the city council is that, while the average of operation in Canadian newsprint mills is nearly 70 per cent, the Thunder Bay mill has been operating at less than 30 per cent of capacity for over a year, although it is classified as one of the lowest cost mills in Canada. The demand is made that the Government enforce the penalty clauses, providing for cancellation of limits and other forfeitures.

Part of the pulp mill of the Sault Ste. Marie Division of Abitibi was operated during the month of January, giving employment to some 40 to 50 men. E. M. Paukert has been transferred from the Sault Ste. Marie Division, where he has been general superintendent, to the Ste. Anne Division, at Beaupré, Que. C. B. Davies, who has been superintendent of the sulphite mill at the Soo, has been transferred to the Iroquois Falls Division.

At the plant of Handmade Papers, Ltd., Toronto, the company recently organized for the manufacture of handmade papers, efforts are being directed to bringing up the product to what may be termed the peak of quality. The concern

RYTHER SHREDDER

Discharging shredded stock directly into beater.

Mounted on platform, eliminating conveyor system.

Saves furnish time, beater time and power. Especially adapted to telephone directories, catalogs and news over issues. Will make 2000 lb. furnish in fifteen minutes.

Excessive peak loads on beater entirely eliminated as shredded stock is in uniformly fine pieces. Can be mounted on truck if desired.

Canadian Ingersoll-Rand Co., Ltd.

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HYDRAULIC CUTTING MACHINE

Your cutting or baling problem

Hydraulic cutting or baling equipment, incorporating the latest features of design, for rapid production and handling of paper and pulp products is a Southwark specialty.

Our engineering staff will gladly cooperate with your production department in reducing your product costs with Southwark time-saving equipment. No obligation . . . . get in touch with our nearest sales office.

Builders of

WALL BOARD PRESSES

PULP BALERS PULP TRUCKS

BALDWIN-SOUTHWARK CORPORATION

SOUTHWARK FOUNDRY and MACHINE CO. DIV.

AKRON UNITED BLDG. PHILADELPHIA CHICAGO FISHER BLDG.

will soon be starting the manufacture on a regular commercial basis. Already a certain number of sample orders have been filled.

Increased Rates Affect Ontario Paper

While the judgment on the case, in which the Canadian railways applied for increased rates on newsprint destined from Canadian to United States points, will not be delivered for sometime yet, last month the Board of Railway Commissioners issued an order affecting the Ontario Paper Co., of Thorold, and the **Chicago Tribune**, the effect of which grants to the Canadian National Railways an increase in such rates. In view of the fact that a contractual relationship between that carrier and the other parties had established a rate covering an all-year round railway haul from Thorold to Chicago, the Board did not consider this case as coming within the scope of the general newsprint inquiry.

Evidence before the Board indicated that several years ago the Ontario Paper Co., controlled by the **Chicago Tribune**, had agreed with the old Grand Trunk Railway to a 25-cent rate, which was a compromise on the difference between 22½ cents water haul from Thorold to Chicago and the prevailing 27-cent all-rail haul. The basis of the agreement was that the railway should be given all of this traffic throughout the year. It was brought out in evidence that the company, however, was employing barges to transport a considerable proportion of the output. The Board of Railway Commissioners' order means that the "**Tribune**" and its subsidiaries will have to meet the 27-cent rate.

❖ BRITISH COLUMBIA ❖

Good progress is being made with the installation of equipment at the new hydroelectric plant of the Powell River Co. at Lois river. The first unit, developing 24,800 hp. under a net effective head of 375 feet, is expected to be ready for operation about March, and the power will be transmitted over a 66,000-volt line, already constructed, to the pulp and paper mills of the company at Powell river. Completion of the plant with a second unit will proceed during 1931.

A special paper de-inking machine has been installed and is now in operation at the plant of the Westminster Paper Co. The machine has been developed and perfected after two years of experimenting, in which the inventor had the benefit of the financial support of the Westminster Paper Co. and of the practical experience of J. J. Herb, president and general manager of the company. In recognition of these services, the company pays no royalty for the use of the invention, while Mr. Herb has been given an interest in the patents. The de-inked paper is being used in the manufacture of high grades of tissues and paper napkins.

Westminster Well Booked with Orders

While the plant of the Westminster Paper Co., New Westminster, was shut down for Christmas Day and New Year's Day, the company, owing to pressure of business, was not able to extend the holiday period of its employees beyond these two days. The plant, officials state, is operating at full capacity, and a very optimistic view is taken in regard to future prospects.

Entering a new and promising market, the first trial shipment of special paper has been forwarded by the company to Rhodesia, South Africa, by direct steamer from Vancouver. This shipment contained wrappers for citrus fruits and totalled about 40 tons. Rhodesia offers a promising market for the products of the company, and considerable business may result from the trial consignment. Regular exports are being made to New Zealand and Australia, and also in smaller quantities to China. The Antipodes' orders for the season are about completed. This year business from there kept the plant operating for 60 days. Despite the coming slack season, the plant has consistently operated at full capacity.

❖ NEW BRUNSWICK ❖

Angus McLean

Angus McLean, of Bathhurst, president of the Canadian Chamber of Commerce, died in Montreal on January 12. He was stricken with illness on December 31 and had gone to Montreal to consult specialists.

In 1874, when only 14 years of age, Mr. McLean obtained his first actual connection with the lumber industry by helping his father, Donald McLean, to drive rafts of lumber from Thurso, Que., to Montreal. By his application and indomitable will, he rose steadily until he was internationally known in the lumber and pulp and paper industries, and at various times held chief offices in organizations in these industries. He was an intense worker for the province in which he spent a great part of his life—New Brunswick—and was prominent always in steps leading to the betterment of the Maritime Provinces and the Dominion as a whole. The regard he commanded from business leaders of Canada was evidenced by his election in 1930 to the presidency of the Canadian Chamber of Commerce. He also was president of the Canadian Lumbermen's Association in 1923 and was president of the Canadian Pulpwood Association from its inception in 1924.

He was connected with a large number of companies, most of them in the Maritimes; but is probably best known through his connection with the Bathurst Co. He founded this as a small lumber company in 1907, developed it into a pulp producer, and in 1923 began producing newsprint, making it the first newsprint mill in the Maritime Provinces.

Mr. McLean is survived by his wife, née Ida Florence Chamberlain, two sons, three daughters and two brothers.

❖ NOVA SCOTIA ❖

Mersey Mill Sells 1931 Output

On his return recently from a business visit to New York, Col. C. H. L. Jones, president of the Mersey Paper Co., stated that the output of the company for 1931 had been sold at a price which will bring a satisfactory return and that contracts have been negotiated covering the bulk of the output of the plant for the next 10 years. His company expects to turn out 77,000 tons of newsprint during 1931, which will keep the mill going to capacity. Production during the past year was 65,000 tons, which was disposed of at $60 per ton.

When asked how it was that, with so many mills idle and clamoring for business, he was able to sell so well, Colonel Jones said that the strategic location of the Mersey mill at tidewater, so close by steamer to New York, enables the mill to deliver newsprint to that great market at a price cheaper than others. He added that the price of the newsprint at the mill is no lower than that of competitors, but that delivered in New York it costs the consumer less.

When in Montreal last month, F. A. Gaylord, general manager of the A. P. W. Pulp and Power Co., Ltd., with a groundwood mill at Sheet Harbour, was pleased to state that his mill was running at full capacity, operating from Sunday night throughout the full week, and turning out about 100 tons of groundwood per day. Although a certain proportion of this production is consumed by the controlling interests of the A. P. W. Pulp and Power Co., at least half of the production is sold on the open market. Mr. Gaylord attributes the successful operation of his mill to the fact that efficient and modern methods of production with necessary equipment have been installed at the mill.

The New York Times of February 1 announces that plans have been made for the establishment of a new paper-mill in Southern Kirin Province on the lower Sungari river in Manchuria. The water power of the Sungari water falls is to be used in running the new mill.

SOLD ON APPROVAL!!!

IT is a unique idea to sell this class of machinery on approval and it can be done only because mill men have found CAMACHINES thoroughly efficient and economical in operation.

As designers, patentees and sole manufacturers of machines using the CAMACHINE principle of slitting and roll winding, the company is ready to install the machine in the prospective purchaser's plant anywhere in the United States or Canada, subject to his right to retain or return it after operating the machine during 30 days following its installation.

The special and exclusive features of design incorporated in CAMACHINE roll winders make for easier threading of the web, less false starts, fewer web breaks, better splices, lower maintenance cost, greater safety to operators. Less power and less skill required and no belts are used.

CAMACHINES handle any kind of paper or paper board that can be put on a reel, winding rolls which are hard all the way from the core up, straight on the ends and free from slitter cracks or checks on the edge.

Our proposition to install on approval permits the mill staff to satisfy themselves in a practical and risk-free way that Cameron-built winders are good roll winders and that they are preferable to others by reason of better roll production with more economical operation.

NEW FEATURE FOR REVERSING WEB IN WINDING

Cameron Patented Method Winds Rolls Wire Side In or Out

CAMERON MACHINE COMPANY

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ENGLAND

Monthly Paper Trade Report

In spite of the fact that raw materials such as wood pulp and esparto, which comprise about 90 per cent of the whole, are from 75 to 100 per cent higher than they were in 1914, and the wages paid three times greater, selling prices for paper in Great Britain are barely 50 per cent higher than they were in pre-war days. This state of affairs has only been made possible by economies in the working of the mills, which have produced big savings in the cost of production. The greater part of these economies has been effected on the mechanical side, but some of them can be traced to the efforts of the mill chemists.

Many marked developments in this direction have been noticeable during the last ten years. In 1919-20 the demand for paper was abnormal, and it was then that the bigger British firms set about modernizing and economizing in the making process, ably assisted by the large paper-mill engineering firms. One of the economies effected has been the simplification of steam generation. By producing steam in the first instance at high pressure, and, after using it for generating power passing it along to the other processes where low pressure steam is required until at length the condensate is returned as boiler feed, it has been possible to effect not only much economy in the consumption of coal, but also in the labor cost per ton of production. New inventions include devices which will increase the efficiency of the beaters, and also a new method of working machine wires.

Another interesting development during the last ten years has been the tendency towards specialization in the making of newsprint paper as distinct from all other grades of printing papers. This has probably been more responsible than anything else for the tremendous developments in machinery used in the production of newsprint. Eight years ago it took 16 machines to make 2,000 tons of paper a week, now four machines can produce a bigger tonnage and without any loss of quality. One of the objects of the newsprint producers has been to produce paper from the cheapest possible materials and in the most economical manner, and of such a quality that the variation over a lengthy period is negligible.

The improvements brought about in newsprint production by this specialization is causing executives in other sections of the paper trade to ask themselves if the same cannot be done with their particular class of paper. One of the almost insurmountable difficulties in the way of such standardization, however, is the fact that much smaller orders are given —many being for one or two tons only. This means constant alterations in the machines, with consequent loss of time and reduction of output, and inevitably additional expense, which in the end must be borne by the consumer. More standardization might be possible in printings and writings but it will never reach the same degree of specialization as that attained by the newsprint section.

Bowater's Mersey Paper Mill at Ellesmere Port on the Manchester Ship Canal commenced its career last month. It has taken 12 months to build, and has two newsprint paper-making machines each of which has a capacity for producing about 550 tons of finished paper per week, or 60,000 tons per year. These machines make a web of paper 18 feet wide at the rate of nearly 1,000 feet per minute. A large part of its output will be used by the Glasgow and Manchester editions of the **Daily Express.**

Last month a lecture was given by R. F. Bowles, B.Sc., A.I.C. in connection with the Stationers' Company and Printing Industry Technical Board, on "The Problems of Printers and Inkmakers," seemed to point to the necessity for inkmakers and papermakers knowing a little more of each other's business. It was pointed out, for example, that very few printers appreciate the essential difference between engine-sized and tub-sized papers, and are inclined to treat them both alike when transferring ink to them either by

THESE TWO No. 11's *serve International's Mill at Gatineau . .*

Two No. 11 Nash Hytor Vacuum Pumps connected to one driving motor at the Gatineau, Quebec, mill of the International Paper Company.

SERVING suction couch and press rolls at the International Paper Company's mill at Gatineau, Quebec, are two Nash No. 11 Hytor Vacuum Pumps. Each of these pumps has a capacity of 4800 cu. ft. of air per min. at a vacuum of 15 inches of mercury.

Also employed in the same mill are a No. 729 Jennings Flat Box Pump and a special Jennings Dryer Exhaust Unit. This is a typical installation of Nash paper mill equipment.

Hundreds of mills throughout the United States and Canada rely on Nash Hytors and Jennings Pumps for dependable service year in and year out.

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SUPER CALENDERS *and* Experience

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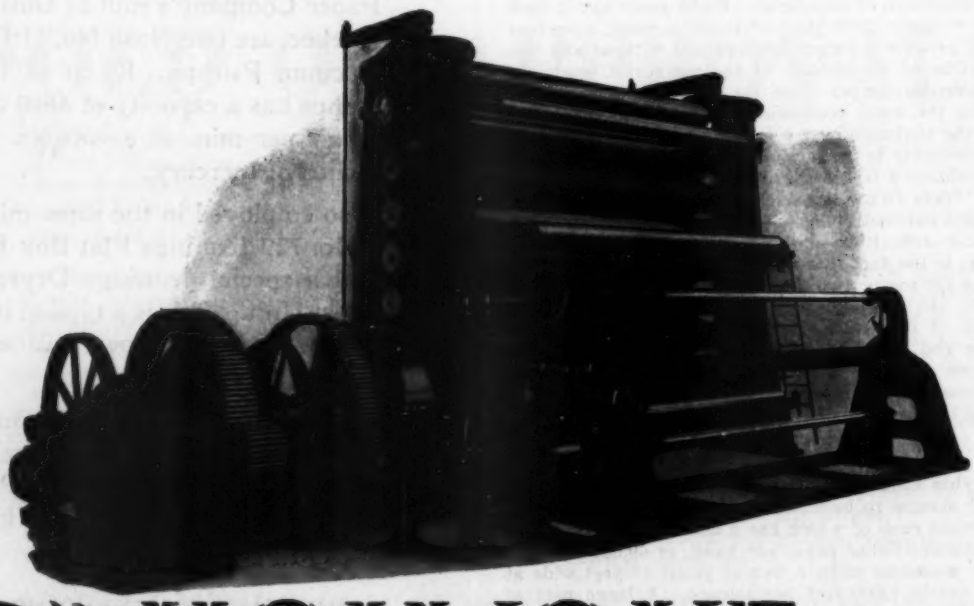

The HOLYOKE MACHINE COMPANY

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letterpress or litho process. The engine-size paper the lecturer pointed out, has resin size mixed with the pulp in the making, which sizing has a chemical affinity for the oil in the ink and thus helps materially in the drying by penetration, whereas with tub-sized papers the sizing is done by immersion into a vat of gelatine size which forms a hard film on the surface of the paper. This gelatine has no affinity for the oil in the ink, and drying has therefore to be almost entirely by oxidization.

Discussing the prospects for the newsprint section of the industry in the coming year, a trade reviewer points out that the consumption of newsprint paper in this country is nearly 50 per cent of the total consumption of paper of all kinds. It is estimated at the commencement of this year as being a little over 1,000,000 tons a year, or roughly about 20,000 tons a week. Of this quantity, the output of British mills, with normal exports, will account for 14,000 tons per week, leaving 6,000 tons to be imported from outside sources. With the opening up of a new mill on the Manchester Ship Canal last month, however, (referred to in the next paragraph), somewhere about 1,100 tons of newsprint have been put on the market of British make in addition to what was already there. This paper has its own assured outlet, and will definitely displace about a similar quantity which had formerly come from abroad.

Investigate Durability of Paper

A report has recently been issued of the findings of the committee of the Library Association set up to inquire into the durability of papers for records that have to be preserved. The report is comprehensive and most of the papers in general use are reviewed. Paper used for publications is divided into two groups: Grade 1 for use where absolute permanence is required; Grade 2 where relative permanence is required on a commercial competitive price. Further subdivisions are used to denote materials used or methods employed. The report states that a properly prepared handmade paper from all rag though necessarily expensive, is of the maximum durability.

Several statements in the report have not been allowed to pass unchallenged. One critic points out that papers made from wood cellulose chemically prepared, instead of being lumped together in one class, should be subdivided into those obtained by the acid process—the sulphite—and those made by the alkaline process—soda pulp. It is not the cellulose or fiber which produces deterioration, this writer goes on to point out, but the presence of adventitious constituents which are less stable and consequently liable to undergo changes in constitution. The acid process for preparation of pulp from wood does not remove some of these constituents, while the alkaline process is more effective in producing a pulp possessing a better degree of permanence.

Papermaking in Australia

W. D. Grozier, an old English paper-mill manager, has had a unique experience of papermaking in various parts of the world, having held responsible positions in Great Britain, India, on the Continent and in the United States. For a number of years he has resided at Sydney, N.S.W., and naturally has taken a keen interest in the various undertakings associated with the development of the papermaking industry in Australia.

In a recent communication to **The World's Paper Trade Review**, Mr. Grozier touches upon the proposed utilization of straw for papermaking. A committee reported to Mr. Thorby, Minister for Agriculture in the New South Wales Nationalist Government in May last, but the defeat of the Government in October, and the financial stringency, make any immediate support to this enterprise doubtful.

Mr. Grozier views with little favor the various pulp and paper projects introduced for the purpose of exploiting local fibers. When in the United States during the years 1905-12 he closely followed the claims put forward in regard to the use of cornstalks. While admitting that good paper could

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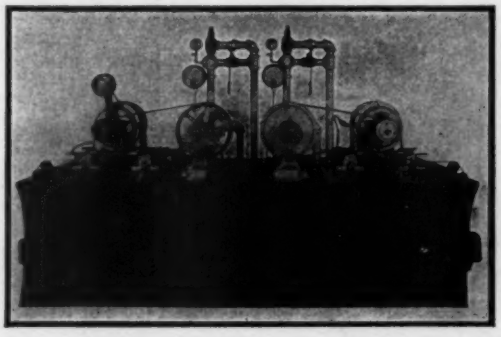

A photograph of Houghton's belt demonstrating apparatus exhibited at the recent New York Power Show held at the Grand Central Palace

In a convincing demonstration at the recent New York Power Show, thousands of interested engineers were amazed when they witnessed the ease with which Houghton's flat VIM Leather Belting outpulled rubber- V-belting.

The V-belt isn't a bad belt. It is a worthy competitor and, considering its youth, is doing pretty well. But nevertheless in spite of the goodness of V-belting it falls far short of being the equal of VIM flat leather belting. This has been proven by thousands of tests made by unbiased transmission engineers as well as by the thousands of tests conducted in our own research laboratory and in actual experience on all kinds of drives throughout the world.

We will be pleased to have you conduct similar tests in your own plant comparing VIM Leather Belting with any V-belt made. In fact, we will be glad to have you compare VIM with any other belt, regardless of shape or make. VIM is without question the world's best belt.

Send for your free copy of "The Belt that put the Pull in the PULLEY"—or better yet ask a HOUGHTON Transmission Man to call.

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2
Increases speed

3
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4
Saves steam

5
Widens trim

6
No suction boxes needed on bottom felt

7
Longer life for bottom felt

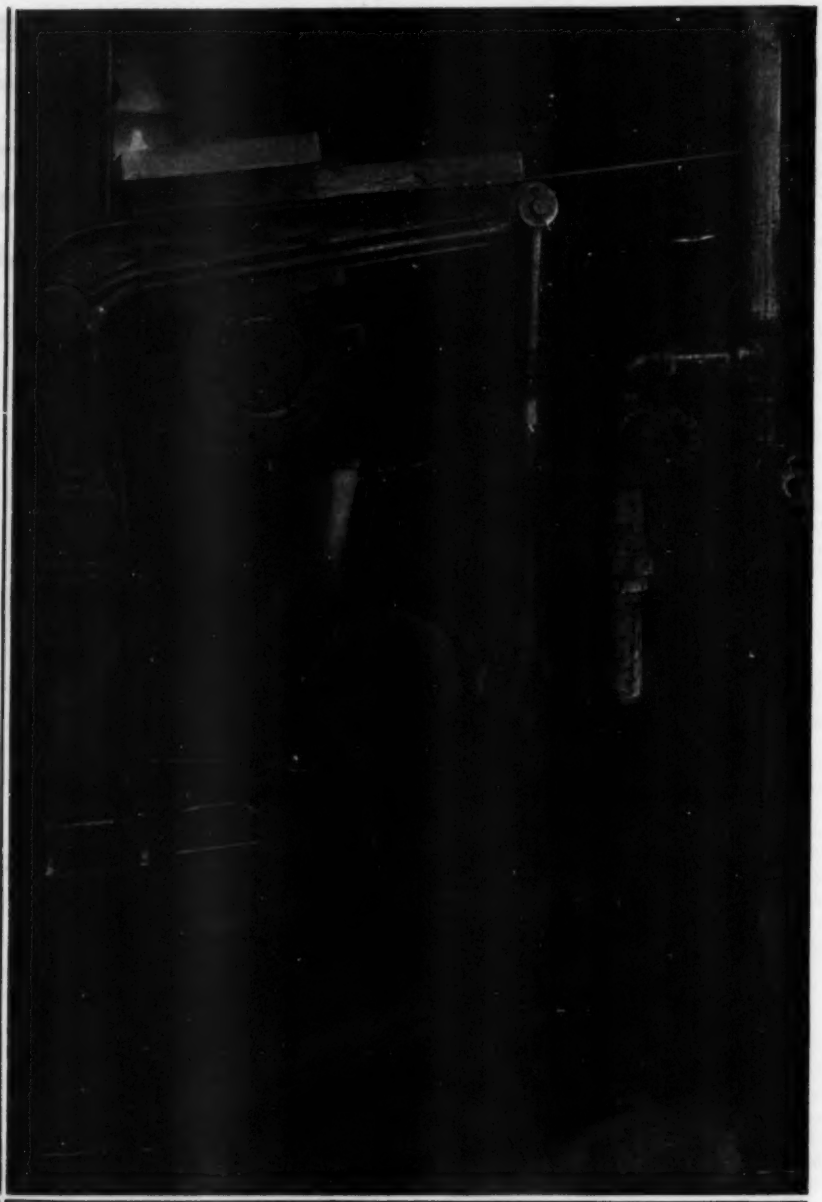
8
Stops felt picking

9
Better finish on sheet

10
Firmer sheet

11
Greater bulk

12
Improves sheet test



Something NEW for BOARD MILLS

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be made from the material mentioned, the cost of production, according to his experience, was prohibitive in comparison with the fibers in general use. It is not surprising, he says, to find that considerable capital has been lost in the attempts made to use cornstalks for paper and other products. In regard to the use of bamboo, notwithstanding investigations covering thirty years, present results are regarded by Mr. Grozier as disappointing.

The use of hard woods in Australia has engaged considerable attention during recent years and claims have been made, without any substantiation, says Mr. Grozier, that papers can be made from them, not only equal, but superior to imported papers of the same class. He remarks that "experiments have been conducted of one kind or another over fifteen years costing as much money as would build a papermill."

From a practical standpoint, Mr. Grozier considers that the fibers previously mentioned cannot be compared with papermaking materials at present in general use and their profitable introduction must be left to a date of pronounced scarcity of fibers of established reputation. Mr. Grozier also strongly condemns the misleading statements made in connection with proposed companies for the exploitation of fibers that have very little chance of success.

❖ NEW ENGLAND ❖

Paper Mill Operation Exceeds Other Industries

Operating 81 per cent of capacity during 1930, the paper industry in Massachusetts exceeded by a good margin textiles, shoes, machinery and other leading manufacturing industries of the State. A general report to the above effect was submitted to James J. Phelan, chairman of the Massachusetts Emergency Unemployment Committee. Although production of New England mills is lower at present than at any recent time, an increase is expected shortly, the report continued. The report further emphasized the point that the paper industry invariably is the last to feel the most serious effects of depression and is among the last to respond to a turn in the business tide. A year ago it was recalled after a marked decline in business had already been apparent for several months, most of the fine paper mills of the State were operating at or near capacity.

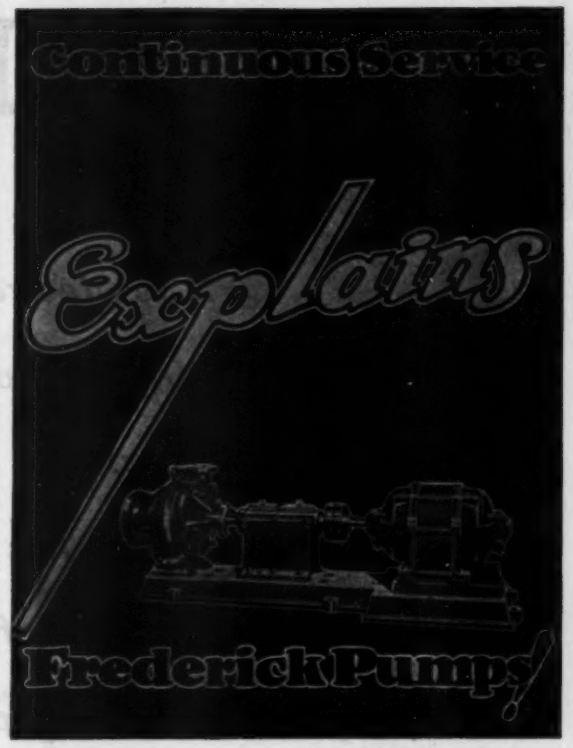
The official compilation of employment in various industries as prepared by the State Department of Labor and Industries, showed for December that in 27 mills there were 5,675 employed as compared to 5,656 in November. Most of these employees were on part time, something over 1,000 for the 27 mills were without employment.

Many Improvements by Hollingsworth & Whitney

In addition to the new power plant equipment at the Hollingsworth & Whitney Co. mills, the company has done considerable work on its machinery looking towards more efficient operation and better paper.

Bird Machine Co. centrifiners at the Gardner plant were installed to insure utmost cleanliness of bond paper. Paper machines at both Gardiner and Winslow mills have been improved and new suction rolls installed. Digesters have been reconstructed in such thorough manner as to make them practically as good as new. The new boiler equipment and stokers enables the company to dispense with the use of old boilers located in such a manner that they occupied valuable space which is now used more efficiently in moving pulp to beaters. Some of these old boilers are to be retained for the disposal of refuse. During February it is hoped that the new equipment of the power plant will be in shape for operation.

A Transite Asbestos hood, and exhaust system, installed by Ross Engineering Co., has been added to the equipment of No. 4 machine at the No. 8 mill of Crocker Burbank & Co., at Fitchburg, Mass.



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—of genuine interest to you because you are fundamentally interested in methods for reducing power costs and expensive shutdowns in your paper or pulp mills, and this latest Frederick Folder tells how a *pump* manufacturer can help you do this by proper pump *design* . . . For it is true that Frederick Centrifugal Stock Pumps take less Power and give continuous Service.

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Knowledge gained from over 50 years of making Wires for American and Foreign paper makers has led to the development of looms of our own design; wire drawn to specification in our own plant; skilled, experienced operators, and a product giving long and dependable service.

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are good wires
APPLETON WIRE WORKS INC., APPLETON, WIS.

Connecticut Valley Supers Elect Officers

The Connecticut Valley Division of the Paper Mill Superintendents' Association held the annual meeting Saturday, January 17 at the rooms in Holyoke, Mass., and after an interesting discussion of mill problems had an election for officers to serve during the ensuing year, as follows:

Chairman, Lewis E. Weiser, New Haven, Conn.; vice chairmen—A. B. C. Drew, New Bedford, Mass.; Claude H. Smith, Holyoke; Richard F. Driscoll, Lee.

Secretary-Treasurer, Forbes Wood, Holyoke.

The above named officers and the following will constitute the Board of Governors: John J. White, S. W. Smith, F. S. McDonnell, E. W. Bush, R. G. McCorkindale, A. T. Barnett, Arthur Wyman, Joseph Bario, W. E. Hogan, L. M. Yoerg, John Leishman, Geo. S. Carroll, T. T. Rogan, T. M. Pomeroy, James M. Geraghty, M. V. Horgan, John H. Browne, Leonard L. Taylor, Charles C. Champion, L. D. Frisbie.

A committee consisting of John J. White, Geo. W. Reardon and Ernest W. Bush were appointed to draft resolutions on the death of Charles N. Mooney, of Lee.

It is planned to conduct a vigorous campaign for new members under the direction of Chairman Weiser.

Traffic Matters

New England paper manufacturers will find very shortly that the ten-year debate as to the disposition of the main New England carriers, that is, whether they should be consolidated with trunk lines, or joined together in a single New England system, holds more than academic interest to them. The Pennsylvania R. R. by sufficient stock purchase now practically controls the policy of the New Haven and Boston & Maine railroads, New England leading carriers.

The first tangible move as a result is the proposal to amalgamate the freight yards and terminals of these railroads where they serve the same cities and one of the most important is Holyoke. A hearing was held early in January at Holyoke under the auspices of the local chamber of commerce largely attended by paper men, at which the proposal to consolidate freight terminal facilities of these two lines was put forward. The American Writing Paper Co., as the largest single shipper out of the city, represented by President Willson wanted to be shown before acceding to the idea. Furthermore, the New Haven R. R. it develops, plans to abandon the Holyoke & Westfield R. R., a branch line owned by the city and leased to the New Haven R. R. Further detail on the plan was sought and will be presented later.

In the meantime, similar action is contemplated at Lowell, Mass.

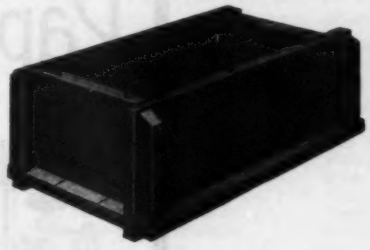
C. L. Whittemore, representing the New England Paper & Pulp Traffic Association at the salt cake rate hearing in Chicago, carried with him data on which to base a proposal for a reduction to about 15 per cent of the new first class rates as proposed in the Eastern Class Rate Investigation. The carriers are proposing a 22½ per cent of first class basis for salt cake. Present rates on salt cake to New England points range from 19.50 cents per 100 pounds to points west of Springfield; 22 cents to the bulk of New England territory and up to 25.50 cents or more to Maine points.

Minor rate changes proposed by the New England Freight Association during the past month affecting various papermaking commodities included the following: Paper boxboard from Chatham, N. Y., to Westfield, Mass., present, 13.50 cents plus $3.60 per car switch, proposed, 13.50 no switch to meet motor truck competition; pulp screening: Mechanicsville, N. Y., to Milton, N. H., present, 18.50, proposed 10 cents; pulpwood rates on a per 100 pound basis down ½ cent from Quebec Central R. R. points to Gilman, Vt.

Meeting of Paper Merchants

The New England Paper Merchants Association met at the Harvard Club, Boston, on January 15 and elected Floyd Blackman of D. F. Munroe Co., president, succeeding Arthur E. Ham; William H. Rourke and Frank Merrill, vice-presidents; George Allen, treasurer, and E. D. Bement, secretary. The meeting was graced by the presence of all the officers of

WOOD TANKS



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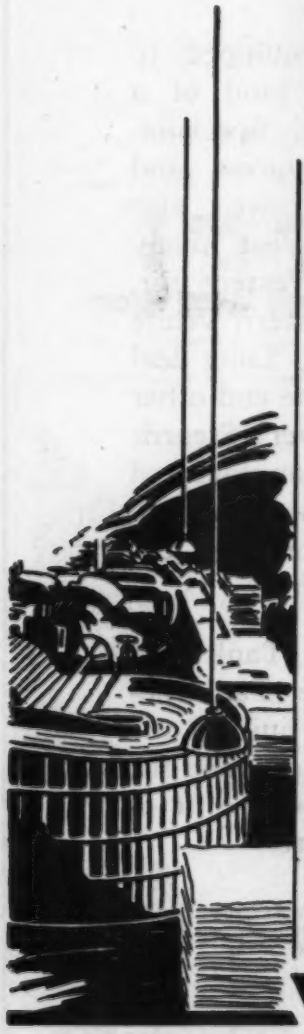

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the National Paper Trade Association, Kit S. Warner, president and Frank Floyd, secretary.

The new president and secretary of the association staged an excellent amateur Amos an' Andy sketch depicting the trials and tribulations of the Fresh Air Paper Co., in which many hot shots were taken at leading mills, and at the follies of the trade generally.

Fine Safety Record at St. Croix Paper Co. Mill

On January 1, 1930, the employees of the St. Croix Paper Company, Woodland, Maine, were divided in two teams for purposes of Safety Bonus Competition. Those men having odd-numbered time cards made up the "odds" team and those having "even" designation were possessors of even card numbers. This was to obtain the utmost equality in competition and bring about the condition where mates on a job became bonus competitors.

On July 2, 1930, the "evens" were awarded nearly $1,000 in cash, every man eligible receiving a $5 gold piece; not a single rule violation or other source of penalty was chalked against their record. The men had a perfect accident record and attained the requisite total equivalent to "100 Man-Years Worked Safely" in the least possible time.

Carrying on this remarkable performance, the "evens" completed the year on December 31, 1930, and now point with pride to their great accomplishment of having worked 516,299 actual hours, averaging 201 men, without a lost-time accident, without a penalty for neglect of injuries or disobedience of safety rules. Numerous credits were earned by their having submitted many approved safety suggestions.

The "odds" team won their gold pieces in October, after suffering the few accidents experienced by this plant.

THE PAPER INDUSTRY is informed by W. J. Brennan, director of safety at Woodland, that the year 1930 turned out to be the most successful safety year the St. Croix Mill has ever experienced, accidents having been reduced 33 per cent over 1929 and 97.4 per cent since 1925. With but four lost-time accidents totalling only 50 days lost time, the men in the mill may well feel proud of this devotion to an ideal. Not one finger, toe, hand, arm or eye was lost the past year at St. Croix, no disfigurements suffered and, with an average crew of 448 men, eight out of the 12 months have been 100 per cent safely worked.

Taylor Stokers Not Pulverizers

The erroneous statement was made in a news note concerning improvements at the Hollingsworth & Whitney Company mill, Winslow, Me., published in the January issue of THE PAPER INDUSTRY, that the capacity and efficiency of the plant were to be enhanced by the addition of "two Taylor powdered coal burners made by the American Engineering Company."

This was a regrettable inadvertence since the American Engineering Company, as our readers know, are manufacturers of Taylor stokers, which are competitive with pulverized coal systems. The Hollingsworth & Whitney Company's boiler plant is to be equipped with two new 1,120 hp. Edge Moor boilers and two Taylor Multiple Retort Underfeed Stokers. It is understood that some $600,000 will be expended in the reconstruction of the power plant.

Some reports concerning Nashua River Paper Co., has stated that this company makes bags; as a matter of fact paper bags are made in a part of the mill, but the plant used is leased by Bemis Bros. Bag Co., and the bag manufacturing is carried on by them, with paper furnished by the adjacent paper-mill.

An addition to the transatlantic pulp carrying fleet is a new Norwegian steamer, Orla II, built at Copenhagen for Bargvalls Rederi Steamship Co. Her maiden voyage brought 3,550 tons of baled chemical wood pulp from Skutskar, Sandarnem Valvik and Sprengsviken to Portland, Me., with additional cargo for Philadelphia. The vessel carries 5,800 tons, is diesel motor equipped, and is equipped with the latest

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Harry Lee Baker and William L. Wilson

The bulletin presents information of interest to pulp company executives on the following subjects:

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cargo handling machinery. She will be in regular movement between Scandinavian ports and Portland, Boston and ports to the south.

George R. Wallace

Col. George R. Wallace, president and treasurer of the Fitchburg Paper Co., Fitchburg, Mass., died at his home in Fitchburg on January 28, after a long illness which had forced him to give up active management of the paper company and of his other business interests which included textile enterprises such as the Rodney Wallace Co. of Fitchburg.

Col. Wallace was 72 years of age and had a long career in the industry. The Fitchburg Paper Co., expanded under his management to one of the leaders in the New England book paper industry.

His military title was given for serving on the staff of Governor Ames in 1887; he also served a term in the State Senate in 1902 and wielded considerable influence in politics at various times in his life. Before the amalgamation of the Fitchburg R. R. with the Boston & Maine, Col. Wallace was president of the former carrier and later a director of the Boston & Maine R. R.

Col. Jediah Porter Jordan

Col. Jediah Porter Jordan, 85 years of age, for more than 60 of those years an active member of the Boston paper trade, died January 30, at the Hart Hospital, Boston. Col. Jordan was certainly by age and experience the Dean of the Boston paper trade and the roots of his business go back to Carter Bros., one of the large Civil war time firms from which such leading offshoots of the present day are Carter. Rice & Co., and Cook Vivian Co., as well as Col. Jordan's Jordan Card & Paper Co.

Although Col. Jordan's military title came from service on the staff of the late Governor John D. Long, he served in the Civil war as a sergeant major in the 42nd Massachusetts regiment. He was past commander of Posts 88 and 26 G.A.R. Quincy and Roxbury respectively. He also served in the State Senate. Along with Messrs. Pulsifer, Carter and others he was a founder of the Boston Paper Trade Association, to whose membership both mill men and merchants are eligible and was a past president of that organization.

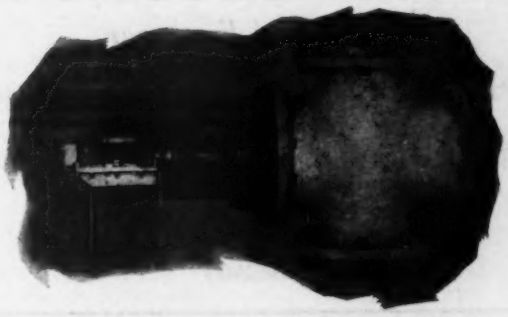
Col. Jordan started as a bookkeeper for Carter Bros., later was a partner in the successors of this concern, Carter Bros. & Pulsifer, Pulsifer, Jordan & Wilson, Pulsifer, Jordan & Pfaff, Pulsifer, Jordan & Co. and in 1896 formed the Jordan Card & Paper Co., of which he was head until his death.

Mr. Jordan is survived by three sons, two of whom are in the paper business.

Announcement is made that Paddock Paper Co., Providence, R. I., merchants will become 100 per cent stocking agents for Champion Coated Paper Co., Hamilton, O. The company already carried some Champion papers. They share the New England distribution for Champion with Rourke Eno Paper Co., New Haven and Hartford, Conn., and Globe Paper Co., Boston.

New A.W.P. Co. Buyer

The American Writing Paper Co.'s close contact with the mill supply fraternity makes their action in appointment of William G. Russell as purchasing agent succeeding the late Mr. Robinson of especial interest. Mr. Russell is a capable man from within the organization having been previously in the engineering department of the company as mechanical and later estimating engineer in charge of estimating and specification work. He comes from Springfield and had prior experience as a purchasing agent and engineer with the Samuel Green Co., of Holyoke from 1908-1917 when he joined the American. So many are the dealer contacts however and so heavy is the detail of the American's purchasing department that the company wisely segregates much of its work. Thus W. L. Plowman continues as assistant



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purchasing agent in charge of conversion supplies, N. E. Hayward assistant purchasing agent in charge of pulp, and E. W. Goman assistant buyer in charge of rags.

R. W. Thompson becomes superintendent of maintenance filling Mr. Russell's former position. Mr. Thompson was previously assistant in this position.

New Bird Products

After three years of trial manufacture, Bird & Son are satisfied that their mulch paper is filling a real need and will continue its manufacture. They also announce a new less expensive grade of pressboard to meet the new competition in that field. Meanwhile, the quality of their high grade board will be maintained.

Another new line with this company is the manufacture of cable paper, discontinued some years ago but being made again after much experimentation by its Research Department to develop a better product.

A laminated binders board is another product which the company soon hopes to put on the market. This board would be thicker than board made on a wet machine, and its advantages would be less curling and elimination of the waste deckle edge.

The installation of a drum tester at the East Walpole mills enables the company to determine for its customers the sort of case or container that will carry their goods most satisfactorily. Expert package engineers are ready to give advice on this problem.

Walter Dearden, at one time with Strathmore Paper Co. and more recently with Rourke Eno Paper Co., has joined a new firm, Butler Dearden Paper Service Inc., at Worcester. E. G. and E. E. Butler of Perkins & Butler Paper Co., old time Worcester wrapping paper house are with Mr. Dearden in the new venture which will concentrate on printing papers.

Commenting on business conditions among the leading firms of their city the Worcester, Mass., Chamber of Commerce says that: Rice Barton & Fales Co., have orders enough to keep them busy for another six months and probably well beyond that. This is chiefly in the paper-mill machinery division of the business. R. B. & F. also make textile machinery.

The sales department of the Nashua River Paper Co., Pepperell and Groton, Mass., kraft paper manufacturers, continues in charge of T. K. Davis who was appointed to that position early last year by the late George Keyes. At this writing no report has been made regarding the election of a successor as president and treasurer.

J. O. Ross Engineering Corp., New York, has received from Johns Manville Corp. an order for vapor absorption and exhaust systems for No. 3 machine at its Manville, N. J. mill.

Birdsboro Co. Builds Huge Universal Board Press

What is said to be the first machine of its kind, the mammoth board press, recently designed, patterned, cast and machined by the Birdsboro Steel Foundry and Machine Company, Birdsboro, Pa., is now performing in one of the country's large manufacturing plants, to a great percentage of its total, daily output.

The main feature of the machine is its ability to turn out a maximum of board product with a minimum of moisture content, thus requiring less time in the board's drying operation. The press, in itself, is universal, being capable of producing insulating board of one-half inch to three inches in thickness, and semi-hard and hard boards one-eighth inch to one inch in thickness. These variations may be acquired quickly and most accurately with almost any grade of stock, such as, saw mill waste, corn stalks, sugar cane or other vegetable fibers.

The large platen and miscellaneous other castings that make up the unit were all cast of Birdsboro open hearth steel. The press was fully assembled and tested at the point of its manufacture, prior to shipping. Its construction is suited for re-design and individual customer requirements.

Nash Announces Pulp and Paper Division

The Nash Engineering Co., South Norwalk, Conn., wishes to announce the organization of a direct sales division of the company in the pulp and paper industry. This action is made necessary by the unfortunate passing of Thomas H. Savery, Jr.

Carlo Vicario, of the New York office, has been appointed manager of the pulp and paper division with offices in the Graybar Building, New York. Mr. Vicario, assisted by C. L. Clark, formerly associated with Mr. Savery, will direct the sale of Nash equipment in the Atlantic, Southern and Mid-Western territories.

H. W. Foulds, assistant to the president, has been placed in general charge of all sales work, by Goulds Pumps, Inc., Seneca Falls, N. Y. Mr. Foulds was formerly connected with Servel, Inc., as vice-president.

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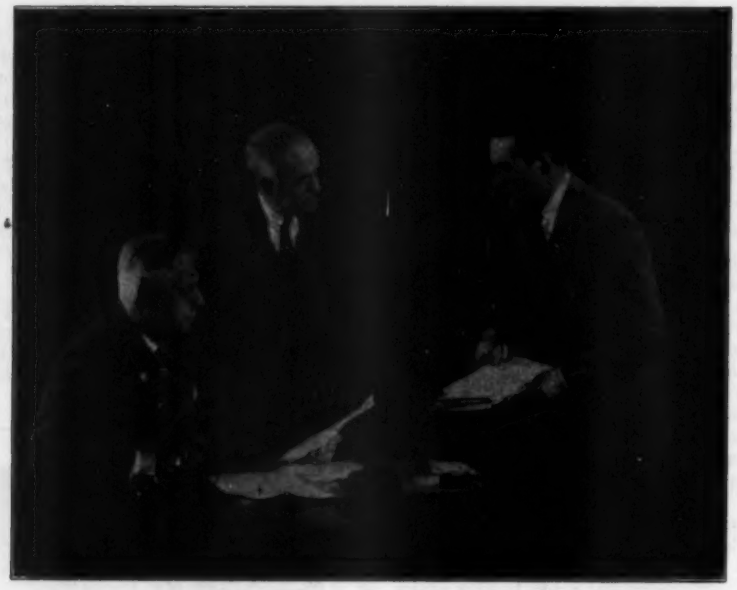

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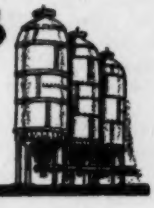
Technical Developments in the Paper Industry



Domestic and Foreign

The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

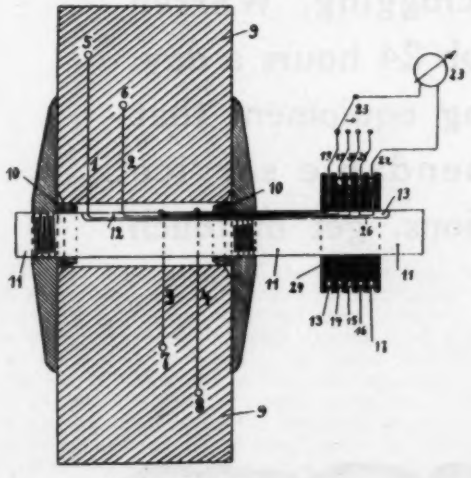
Purifying Black Liquor

THIS process is concerned with the removal of the impurities that are contained in black liquors and recovery of the organic substances. For example, a 15 per cent black liquor, which contains 11 grams of organic substances (alpha and beta cellulose) per liter, is heated in an autoclave to a temperature of 180 degrees Cent. under ten atmospheres pressure, obtained by means of oxygen gas. After this treatment, the liquor is completely free from organic substances.

A waste liquor obtained from the soda cellulose process, which contains 200 grams of sodium hydroxide and 19 grams of organic substance per liter, is heated in an autoclave with the addition of 70 grams of strontium oxide per liter toma temperature of 180 degrees Cent. Under 15 atmospheres oxygen pressure. The result is a liquor which is free from soda and organic substances and contains the sodium hydroxide concentration of the original liquor. I. G. Farbenindustrie A. G., Frankfurt-am-Main, Germany. Austrian Patent No. 119,490.

Temperature Regulation in Wood Grinders

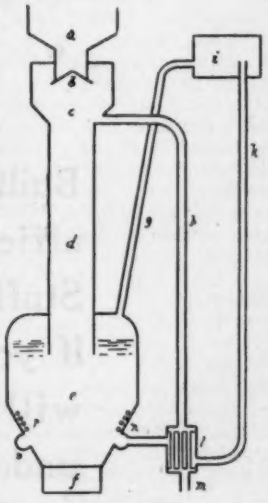
THE new arrangement makes it possible continuously to watch the temperatures at various parts of the grindstone and to control the operation of the grinder in such a manner, in connection with measurement of the temperature of the mechanical wood pulp produced and of the spray water, that the circumstances, which lead to the splitting of the grindstone, are avoided.



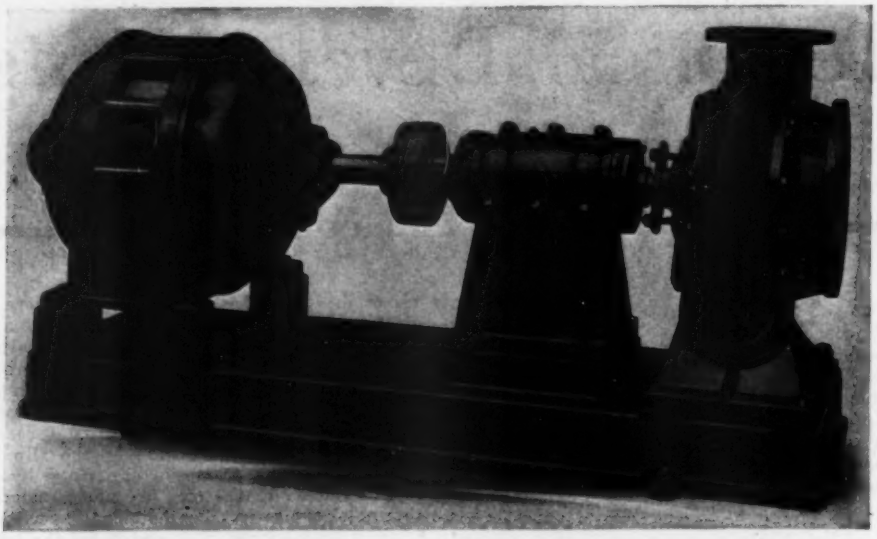
The device used is shown in cross-sectional form in the accompanying illustration. A number of thermo-elements are inserted in various portions of the grindstone and are shown at (1), (2), (3) and (4). The grindstone is shown at (9). The arrangement of the thermo-elements in the grindstone is such that the soldered places (5), (6), (7) and (8) lie on the external side of the stone (9). The slip ring collector (24) consists of as many copper rings (13), (14), (15) and (16) as there are thermo-elements and also of a Konstantan ring (17). The temperature of the grindstone at the soldered points develops in the thermo-elements an electrical current which corresponds in intensity to the temperature, and which is conducted to the slip rings. The current is taken up from the slip rings by the slip brushes and conducted to the measurement arrangement (23). The thermo-elements can be individually switched in by means of the rotary switch (25), and hence the temperature at any point in the grindstone, in which there is set in a thermo-element, may be observed. Dr. F. Ruehlemann, Germany. German Patent No. 496,864.

Continuous Production of Pulp

THE apparatus in which the new process is carried out is shown in the accompanying illustration. The wood chips are fed to the funnel-shaped hopper (a) and thence into the upper portion of the digester or loading chamber (b). The chips there come into contact with the vapors that rise out of the standpipe (d). The result is that the air and gases are separated and led away separately. The wood chips are so thoroughly wetted down, that they sink below the level of the liquid in (d) at the point of the run-off (h), if the pressure of the column of wood chips does not itself cause the chips to sink below the surface of the liquid. The chips sink gradually to the bottom of the standpipe (d) and this against the upward movement of the liquor itself. The liquor thus gives up its last traces of sulphur dioxide to the wood chips, as well as its excess heat, so that the wood chips are heated up in the course of their counter-current movement.



The chips thus gradually make their way into the body of the digester (e), where they are subjected to higher temperature and to stronger digestion liquor. There the dissolving out of the incrustating substances takes place. Inasmuch as the partial pressure of the water vapor and that of the sulphurous acid at the various temperatures do not correspond, the possibility must exist of leading away the rising free gases, without sending them through the standpipe. The gas space is provided for this purpose, and the pressure in this space can be adjusted at any desirable point. This is done partly by leading away the gases through the pipe (g) to the digestion liquor tank (i), and partly by opening the overflow pipes (h) for the consumed liquor, arranged at various heights. The overflow pipes (h) allow the waste heat to be given up to fresh liquor in a preheater (1), and the fresh liquor is led into the digester (e) through the tube (n). The pressure existing in the body of the digester (e) depends upon the height of the liquid column in (d).



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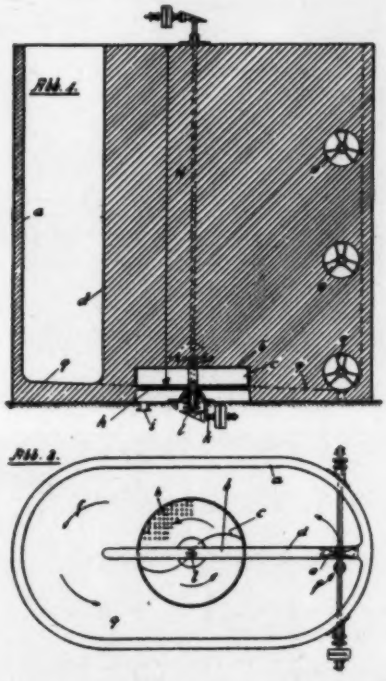
Due to the arrangement of the container (i) above the overflow pipe (h), the fresh liquor has a higher pressure than in the digester (e), so that the liquor automatically flows into the digester, and the amount of this flow is regulated by means of a valve. Due to the continuous addition of liquor to the bottom of the digester corresponding to the consumption of the same in the digestion operation, a corresponding amount of liquor flows out through (h). The liquor in the digester is heated either directly or indirectly by means of steam. The digested pulp is removed through the bottom opening (f). E. Laaser, Berlin, Germany. German Patent No. 499,010.

Drum Bleaching Apparatus

THE new drum bleacher is shown in sectional and plan view in the accompanying illustration. The drum bleacher (a) has a dividing wall (d) with cut-out space (b) at its lower end which serves for holding a doctor device (c), which is made with bent wings. The arrow (f) indicates the direction of the flow of the stock.

The liquid, which is pressed through filtering plates, enters the drum bleacher through the inlet (i). The rotary shaft (1) of the doctor (c) is carried in suitable bearings



and driven by cone wheels from the external drive (k). The bleach liquor which is located under the filter plates may be conducted later into the top of the drum bleacher.

Due to the circulatory movement of the stock (f), which acts on the rotary movement of the doctor device (c), the consumption of power for driving the apparatus is very small. The result is that the circular movement of the stock causes a constant inward flow of new stock to be dehydrated and to be pressed out on the filter plates (h). This results in complete dehydration. The area of the drum bleacher may be chosen at will corresponding to a definite diameter. Zellstoffabrik Waldhof, Germany. German Patent No. 498,559.

New Method of Purifying Rosin

THIS method is concerned with the removal of impurities from rosin which is to be used in the preparation of rosin size for paper sizing. The purification of rosin and the removal of the color are usually carried out by dissolving the same in gasoline or benzine, the color being removed by means of furfurol. Furfuryl alcohol may also be used for decolorizing rosin. Thus eleven parts by weight of furfuryl alcohol are added to a solution of rosin containing 15 parts of rosin and 85 parts by weight of solvent. The most suitable temperature for the dissolving of the rosin is 46 degrees C. The separation takes place more easily and more completely when the mixture is cooled down at a temperature of minus 12 degrees cent.

The highly purified rosin is recovered from the solution by distilling off the solvent and a less pure rosin is obtained by distillation from the furfuryl alcohol solution that is obtained in the course of the process. The use of the proper kind of apparatus allows the recovery of the furfuryl alcohol in its largest part and this solvent may then be used over again in the process. Other solvents equivalent to gasoline and benzine may be used in this process. The purified rosin is highly suitable for sizing high grade paper. Riz, Industritidningen Norden, volume 31, year 1930, page 263.

Determining Bleachability of Sulphate Pulp

AN investigation on the suitability of the permanganate method for the determination of the bleachability of sulphate pulp involves comparison with the Sieber coefficient method and the values attained by direct bleaching. The conclusion is reached that the permanganate method is generally well suited for the determination of the bleachability of a sulphate pulp. Inasmuch as marked variations in the permanganate coefficient take place in one and the same sample under test, the authors worked out a special method for taking the sample. The determination of the permanganate coefficient takes place in the following manner: A sample corresponding to two grams of air dry material is placed in a porcelain dish and water is poured over the same. The sample is mashed up by hand with the water and is then brought into a glass flask of 300 to 400 cc. content. This flask has a ground-in glass stopper. There have previously been introduced into this flask 80 cc. of n/75 potassium permanganate solution and 2.4 cc. of normal solution of sulphuric acid. At the same time a stop-watch was started, the glass flask was slowly shaken until the violet color had changed into yellow or yellowish-brown and then the watch was stopped. The number of seconds gives the Roschier coefficient. The temperature at which the test was carried out was maintained at 20 degrees Cent. When these conditions are maintained constant throughout the tests, the following values were obtained for various qualities of sulphate pulp, the figures being the seconds of times that were required for the decoloration action to take place.

Easy bleaching sulphate pulp	55 seconds
Difficultly bleaching sulphate pulp	35 to 55 seconds
Average hard sulphate pulp	25 to 35 seconds
Hard sulphate pulp	25 seconds

As far as the action of the solution of potassium permanganate on hard and bleachable stock is concerned, there appears to be uncalculable differences, in the ratios of the Roschier and the Sieber coefficients, but these differences are always of little importance. R. Karlberg and K. Hagfeldt, Svensk Papp. Tidn., volume 33, pages 594ff, year 1930.

Used of Hot Air for Increasing Efficiency of Pulp Drying Machine

THE very marked differences that are found in the reports on the increase of efficiency of pulp drying machines by means of hot air. This led the author to investigate the problem. He was concerned especially with the importance of partial pressure on the drying efficiency. He investigated practical installations in which the air was preheated and determined the efficiency of the same for use in the dry end of the papermaking machine. The results of the experiments indicated that an appreciable preheating of the air over the saturation temperature, corresponding to the quantity of air, effected only an inconsiderable increase in production or no increase at all. The reason for this is that the partial pressure of the steam is not affected, inasmuch as the pressure differential between the pressure of evaporation and the partial pressure of the steam in the air remains unchanged.

It has been established that increases in the production amounting to ten to 25 per cent are obtained by blowing in warm air. These are due in part to the saturat-

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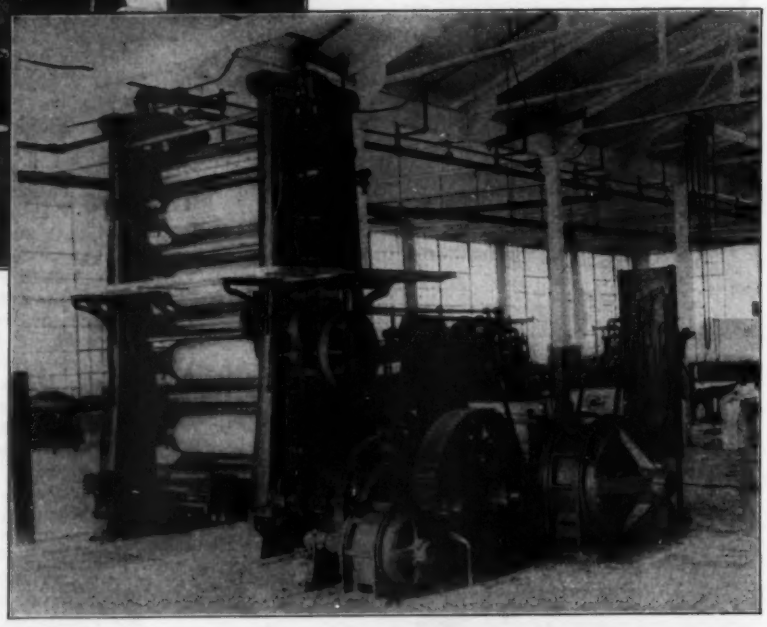

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(At right) Norwood Super Calender, showing two motor drive

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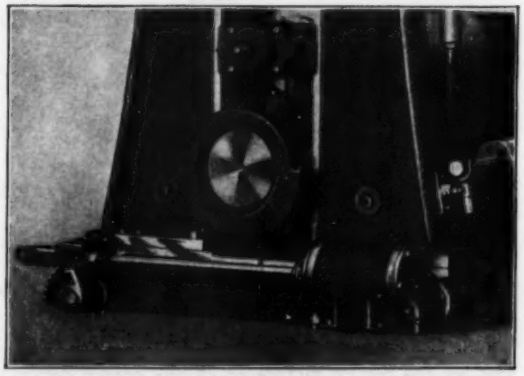

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FILTERS - CALENDERS - PLATERS - DUSTERS - RAG THRASHERS - FOLDING MACHINES - SUCTION BOXES

ion of the air that is removed, partly to false conclusions. The heating of the air to a certain minimum temperature can be accomplished either by the moist air removed or by means of the condensate from the cylinders. The first method is very effective from the heat economy basis but the installation is much more costly than the second method, which involves great operating cost. G. F. Heikel, Papp. och Traevarutidskr. foer Finland, volume 12, page 434ff, 1930.

Surface Temperatures and Vaporization

THE research has been carried out in considerable detail. An investigation was made of the operation of the papermaking machine in the production of non-grease absorbent paper. The authors are concerned with the dimensioning of the dry end of the machine and the distribution of the drying elements. Such a machine is shown in Fig. 1. There are 22 drying cylinders and ten felts. The temperature on the surface of the cylinders is measured. This is carried

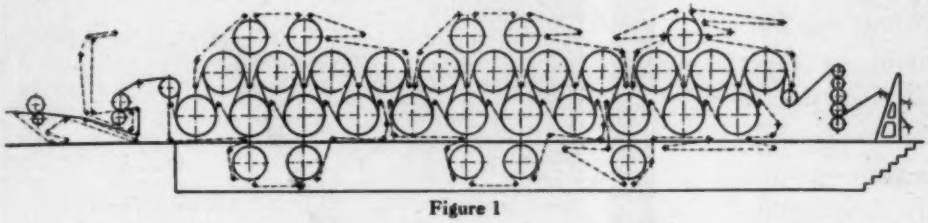


Figure 1

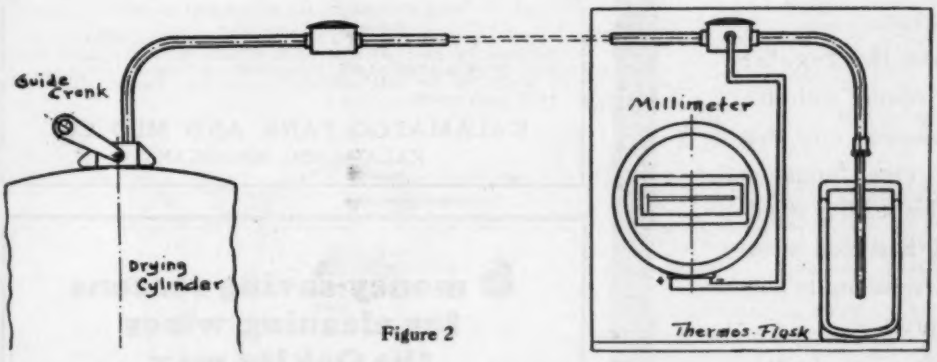


Figure 2

out with the aid of a double thermo-element, which consists of two thermo-couples connected in series. This is shown in Fig. 2.

The following are the essential points brought out in this research. When the results are studied, it is shown that it is possible to watch over the drying process in the papermaking machine and to carry it out in an orderly manner by making observations of the surface temperature. The instruments that are available to-day for the measurement of these temperatures at the surface of the drying cylinders are neither able to give absolute values nor correct ones. The figures that are obtained must be considered relative and applicable only to one and same papermaking machine when obtained under accurately defined and unchanged conditions. This criticism relates not only to the ordinary constructed pyrometers with thermo-electric measuring devices, but also to the instruments, which likewise slip over the surface and show the temperature through the expansion of an enclosed liquid.

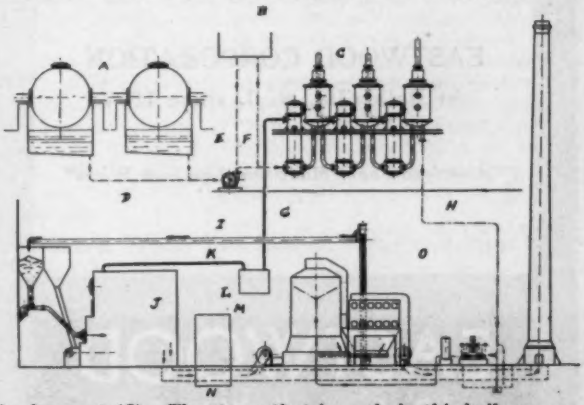
It is however possible to use these pyrometers for the exact measurement of temperatures on surface at rest. In all the apparatus of this kind that have been developed up to the present time, and which have been used for the measurement of the temperature at the surface of a rotating cylinder, no provision has been made for taking into consideration the heat of friction. The authors spend much time in their article to define the conditions which control the production of heat by friction. The point that had to be established in the investigations is to what extent these circumstances affected the results obtained with the measuring instrument, and to correct the error that took place. As long as these facts are given their proper attention, the pyrometers, no matter what their construction may be, will not give accurate figures.

The authors explain the changed construction of the temperature measuring instruments that they use in their experiments. The original article contains many tabulations of results and graphical charts. Dr. F. Mueller and R. Trenschel Der Papierfabrikant, 1930, pages 825 ff.

Evaluating Sulphite Waste Liquor

THE conversion of waste liquor into a combustible product is a problem which has occupied the attention of paper technologists for many years. For a long time it has been known that the calorific value of the dry powder amounts to 3,800 heat units. More recent publications give the value as 5,000 heat units. The problem is to convert the waste liquor into combustible form by as inexpensive a method as possible. Continuous operation of the process is an essential condition of the same. Furthermore, the entire process must be carried out in an apparatus which is easily supervised.

Such an apparatus is of the type shown in the accompanying illustration. The digesters are shown at (A), while (B) represents the sulphite-alcohol plant and (C) the evaporator installation. The crude liquor is sucked out of the bottom of the digesters through the pipe (D) by means of the centrifugal pump shown. A fresh liquor pipe (E) extends from the pump to the sulphite-alcohol plant. The line (F) is for the removal of the slops from the alcohol plant to the evaporator installation (C). The evaporator installation is fed with exhaust steam through the line (G) from the turbine (L). The evaporated liquor from the evaporator installation passes through the line (H) to an atomizing installation, shown at (O). The material is dessicated in this installation and the powder is passed through the pipe (I) and drops into a funnel, from which it is fed into a boiler which is arranged for pulverized fuel heating. This



is shown at (J). The steam that is made in this boiler passes through the line (K) into the turbine (L). The flue gases from the boiler pass through the flue (N) into the economizer (M) and thence into the atomizing apparatus.

The waste liquor contains at the most 88 to 90 per cent of water and is evaporated under a vacuum to a water content

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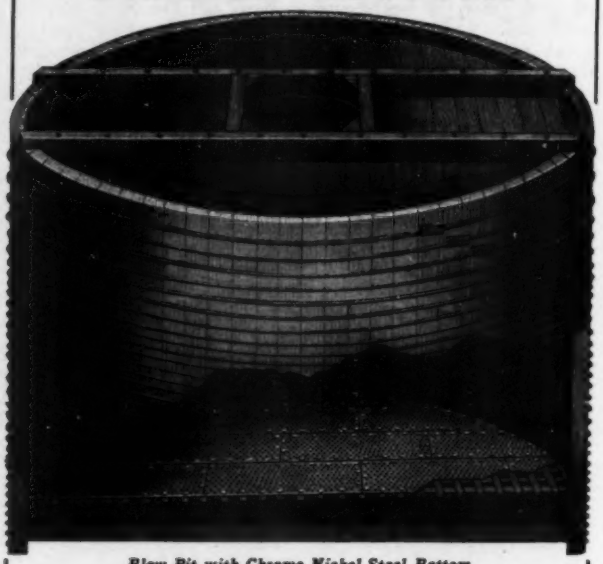

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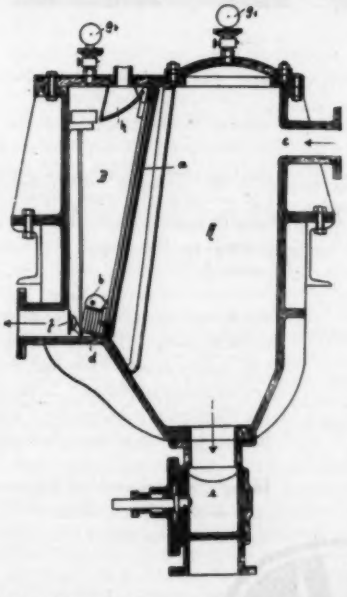
of 50 to 60 per cent, and is finally dried to a powder which contains approximately five to eight per cent of water. The author analyzes the cost of the operation in detail. W. Kuhles, Der Papierfabrikant, 1930, pages 604-607.

Evaporating and Purifying Digestion Waste Liquors

IT is known that the danger of the formation of deposits during the evaporation of sulphite liquors is much greater than in the case of alkaline liquors. While in the first place calcium salts and particularly gypsum form these deposits in combination with the residual fibers and the organic matter in the liquor, the deposits in the case where alkaline liquors are evaporated is due for the most part to organic materials, resins, fibers and the like. Although it is true that these substances are easier to remove from the heat transmitting surfaces, nevertheless their action in reducing the transmission of heat is very potent.

An apparatus has been designed for removing all of these substances before the black liquor is fed to the evaporators. This filter is shown in the accompanying illustration, and consists of a cast-iron container, in which a movable filter cloth of monel metal is built and stretched in a wrought iron frame, which is provided with two shafts journalled in the container at the upper end. The filter cloth is thus divided in a way into two parts (A) and (B). The frame (a) obtains its movement by means of a shaft (b) which is provided with eccentrics. The result is that the cloth is slowly shifted against the direction of the flow of the material coming from the diffuser at (c) and then quickly brought back again by two spiral springs (d) against two rubber bumpers. This forward and backward motion is repeated about six times or so per minute. The undissolved materials in the liquor deposit on the filter cloth and form a film of greater or lesser thickness and this film is loosened by the rapid backward

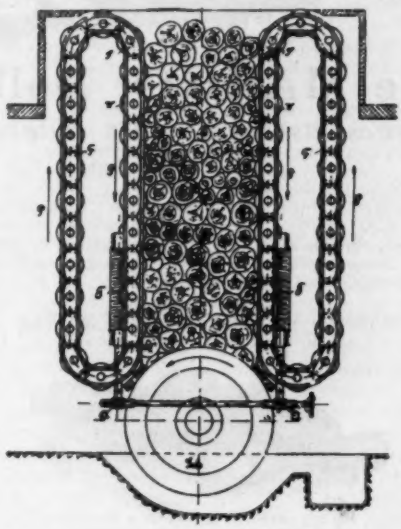


movement of the filter frame. The loosened material sinks to the bottom of the apparatus, where an automatic discharge valve (e) is located, which can be adjusted according to the amount of undissolved substance in the liquor. It is important that the tank of the filter is always entirely full of liquid. In order that this should be provided for, a float valve is provided in the run-off pipe (f). A manometer (gl) and another (g') are found in the chamber in front of and in back of the filter cloth. These instruments allow determination of the normal flow of liquor through the apparatus.

In order to avoid the pores of the filter cloth becoming stuffed, a stream of warm water or steam may be directed against the cloth from a sprinkler (h). The motor and the drive are located on the frame on which the container is supported. The drive consists of screw and chain which actuate the eccentrics and the discharge valve. Anony. Wochenblatt fuer Papierfabrikation, 1930, pages 1586 to 1589.

Feeding Magazine Grinders

THE feature of the apparatus is the saving of power in the feeding of the wood in the magazines to the grindstone. The apparatus is shown in the accompanying illustration. The manner of its operation is as follows: After the magazine has been filled with wood in such a manner, after disconnection with the drive (A) and the grindstone (Sch) has come to a stop, that the wood attains its natural position, then the grindstone is set in rotation again until it attains



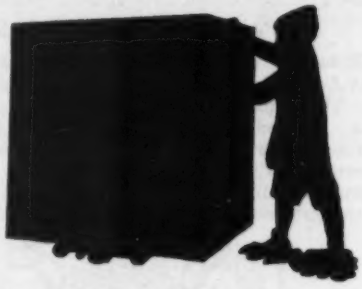
the speed that is required in the process. This is done without the drive (A) being connected. Thereafter such connection is made with the result that the feeding device of the grinder is set into operation at both sides of the magazine. Thus the feed chains (T) commence operating and moving in the directions shown by the arrows. The manner of the feed is the same as that in magazine grinders of this type and the pressure applied by the chains is passed on from one piece of wood to the next in contact with it and thus applied to the log in immediate contact with the stone itself. O. Herdley, German Patent No. 499,301.

Soda Pulp from Kaoliang Stalk

THIS investigation is concerned with the manufacture of soda pulp and paper from kaoliang stalk. The consumption of caustic soda in the manufacture of bleached pulp from this raw material amounts to nine per cent and seven per cent respectively. The yield of pulp is then 37 per cent, based on the raw material used. It is considered that the requirements could be reduced to eight per cent and five per cent respectively. Good quality writing paper has been produced by using a mixture of 70 per cent of bleached kaoliang pulp with 30 per cent of sulphite wood pulp or Manila hemp pulp. Unbleached kaoliang pulp gives a medium-grade "burning paper." R. Yakamoto, Report Laboratory S. Manchuria Rly.

The Waste Water Problem in Paper and Pulp Mills

A MECHANICAL device for purifying the waste waters, up to a certain degree, is necessary in all cases and is also valuable to the paper mill operator in that there is possibility of recovery of fiber values. A much more difficult task is the removal of soluble impurities from the waters and liquors, particularly in the case of waste liquors from the manufacture of chemical pulp and straw pulp. Even when the liquors are concentrated by evaporation, a certain quantity of dissolved organic impurities is removed in the sewage flow. Further details are given on the economy of purifying these liquors. Dr. Haupt, Technologie und Chemie der Papier und Zellstoff-Fabrikation, 1930, pages 65 to 70.



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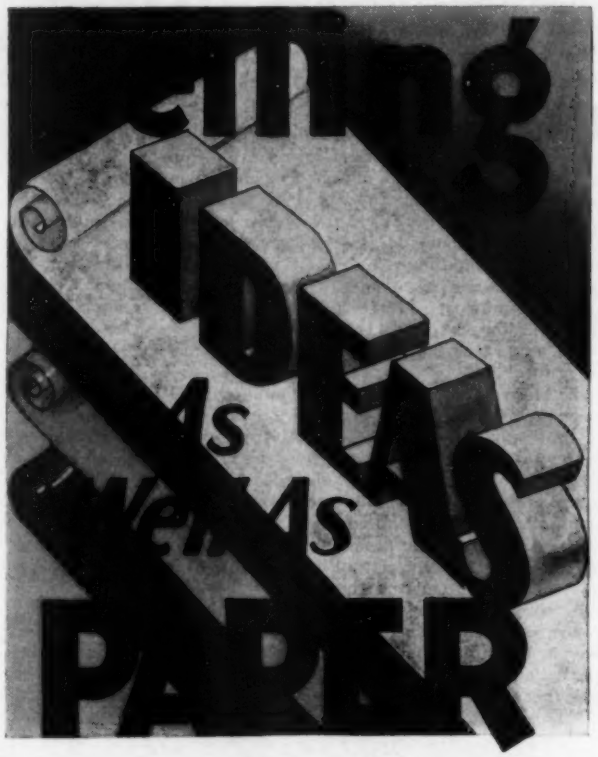

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THERE is no question, according to reports from various corners of the trade, that business in paper has increased to some extent since the turn of the year. Demand is a little livelier, a little more to the point, a little steadier and a bit broader. Consumers and converters continue cautious in their purchases, and show aversion to absorbing other than needed supplies, yet buying is on a wider scale and is giving signs of expanding further as general business gets more into swing and as trade sentiment improves.

A feature of the market is that the increase in demand has covered practically all classes of paper. This, in a sense, attests to the healthiness of the business improvement, as it means that the better demand is based on actual requirements of buyers. There is still a very careful purchasing policy being followed in all lines of trade, and the paper market is no exception to the general rule. Wholesalers, retailers, converters and consumers are exercising care in laying in supplies; it would seem as if they are purposely holding aloof until more satisfied that general business is on the mend and that the slight gains recorded since the beginning of the new year are not merely a flash in the pan. Consequently, most of the orders placed for paper are for comparatively small quantities; that is, as regards current purchases, and yet reports say that most large users of paper who contract for a good portion of their supplies ahead have contracted for tonnages this year which can well be described as fully up to normal. Moreover, despite the restrictions put by buyers on orders, the fact that there are a great many individual orders coming into the market results in a moderately large aggregate of business.

The mill situation is substantially better than it was. Paper and board manufacturers in various parts of the country are operating their plants at bigger capacity, notwithstanding that every effort is being furthered to keep production in line with the current bounds of the market. Many mills accumulated a good volume of orders during the shutdown at the first of the year, and are now engaged in filling these commitments; others have received an appreciable amount of business from customers who so steadfastly held off buying during the last couple of months of 1930 and who meanwhile have been obliged to enter the market to replenish stocks, and still others have garnered sufficient orders to warrant an increase in their output. The feeling is mutual in most quarters of the industry that the next several months will witness a gradual climb in demand until paper business assumes normal proportions.

Another favorable feature is the attitude—which has changed to a considerable degree—of paper manufacturers regarding prices. No longer is there the willingness shown to cut prices to get orders that was observed in the old year, more particularly in the closing months of 1930. Paper producers are putting up a bolder front as concerns prices of their product; offering greater resistance to any additional decline in the market, and manifesting increasing reluctance to granting further price concessions. Perhaps the reason behind this altered attitude is that prices have worked down to such low levels manufacturers are finding it next to impossible to realize a profit on their product, and, after having experienced such a situation for a few months, have grown tired of marketing paper at a loss to themselves. Whatever the reason, it is apparent that a steadier price tone is prevailing, and it would appear as if paper prices are at rock bottom, with the tendency in at least some cases now in an upward direction.

Production of paper and board in the United States during the 1930 calendar year reached a total of approximately 9,962,488 tons, representing a decrease of about nine per cent from 10,984,000 tons produced in 1929, according to an estimate issued by the statistical department of the American Paper and Pulp Association. Consumption of paper manufactured in the United States last year is estimated at about ten per cent below the level of 1929. Identical mill reports to the Association put the 1930 output of newsprint at 1,308,480 tons, against 1,392,000 tons in 1929, a decrease of six per cent; of book paper at 1,303,200 tons, against 1,440,000 tons, a decline of 9.5 per cent; of wrapping and bag paper at 1,456,067 tons, against 1,649,000 tons, a decline of 11.7 per cent; of writing paper at 520,650 tons, against 585,000 tons, a decline of 11 per cent; of cover paper at 25,365 tons, against 28,500 tons, a decrease of 11 per cent; of tissue paper at 367,500 tons, against 375,000 tons, a decline of two per cent, and of paperboard at 4,122,000 tons, against 4,500,000 tons, a decrease of 8.4 per cent.

Production of newsprint paper on the North American Continent registered a decrease of about 7.1 per cent during 1930 as contrasted with the preceding year, according to statistics compiled by the News Print Service Bureau. Production in the United States last year reached a total of 1,281,502 tons, compared with 1,392,276 tons in 1929, a decline of eight per cent; the output in Canada totaled 2,728,827 tons, against 2,499,631 tons, a decrease of 8.4 per cent, while the Newfoundland production increased 12.4 per cent to a total of 287,259 tons, and the Mexican output decreased 23.5 per cent to a total of 14,286 tons. The decline in 1930 was the first recorded in newsprint production in eight years; in other words, the output on the North American Continent had shown a consistent climb in each year over the preceding year from 1923 onwards until last year.

Newsprint mills in the United States produced at an average rate of 76 per cent of their productive capacity during 1930, contrasted with 80 per cent in 1929, and Canadian mills operated at 69.3 per cent of capacity, against 85.5 per cent during the preceding year. December newsprint production was 99,276 tons in the United States, against 92,337 tons in November, and 184,755 tons in Canada, compared with 201,703 tons in the preceding month. Stocks of newsprint at mills at the close of 1930 were 32,061 tons in the United States and 36,777 tons in Canada, making a combined total of 68,838 tons, which was equivalent to 3.9 days' average production.

Mills in the United States manufactured a total of 202,589 tons of paperboard in November, showing a sharp drop from the 253,889 tons produced in October, and bringing the total for the first eleven months of 1930 up to 2,524,129 tons, contrasted with 2,769,035 tons in the corresponding period of 1929. Board mills shipped out a total of 201,980 tons during November, against 251,810 tons in the preceding month, and had stocks on hand at the end of November aggregating 70,408 tons, compared with 69,799 tons a month earlier.

There is a lack of feature in the newsprint market other than that supplies are moving steadily enough into consumption though at somewhat less than normal volume. There will be no change in the contract price basis on print paper this year, according to announcements of leading manufacturers. Wrapping paper is favored with a fair demand, and prices appear more stable than in some while. Writing and other fine papers are wanted in moderate aggregate amounts and prices are maintained. Tissues, greaseproof, parchment, glassines and other specialties are in fair call, and adhering to steady price levels. The board market is developing a little more activity and prices are in a steadier position since some of the important producers marked up quotations slightly and have maintained quoted rates.

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Papermaking Rags

While paper manufacturers in general continue to purchase rags, and for that matter nearly all kinds of raw material, in a cautious fashion and almost entirely against known requirements, the market for papermaking rags has displayed some signs of renewed activity during the first month of the new year. Most of the orders placed by consuming mills have called for comparatively small lots of rags, and have involved mainly a few certain grades, yet there has been increased buying interest, and demand has expanded to at least an extent. Moreover, there is a better sentiment within the trade; dealers and importers are viewing matters more optimistically, are exerting less selling pressure, and are predicting substantial improvement for the market in the not far-off future.

Perhaps the feature of the market is the broader call for roofing rags. Roofing paper manufacturers are very careful in their buying, but they are absorbing some supplies and are manifesting interest in additional amounts of rags. It is asserted by dealers that a distinctly strong supply condition exists in such rags. Low market prices in recent months have led to a drastic curtailment of collections, and sorting operations have been reduced to where the output of roofing rags is far under normal. Furthermore, importations have decreased at an almost startling rate, and these several factors have kept available supplies down to levels where it is stated by dealers that only very small quantities of roofing rags are to be had in any corner of the trade. Felt manufacturers apparently appreciate this situation, and are proceeding slowly in acquiring supplies, presumably in an effort not to excite the market and run prices up against themselves.

No definite changes have as yet occurred in roofing stock values, but a much firmer undertone is observable in the market, and it is evident that dealers are cautious in accepting orders other than for rather limited tonnage and at what are regarded as full market rates while fearful of being unable to locate all the supply that might be needed to cover commitments to mills. No. 1 domestic roofing rags are quoted at about 90 cents per hundred pounds and No. 2 packing at 65 cents f.o.b. shipping points, while foreign dark cottons are on a price level of 75 to 80 cents a hundred pounds ex dock U. S. Atlantic ports for forward shipment from abroad.

New cuttings of some grades are moving in a moderate way though at generally lower prices. Writing paper and other mills are purchasing new rags in very sparse amounts; some demand of course is noted but it is of a scope which has had virtually no influence on the market—not even enough to sustain ruling values at the outset of the year, and most new cuttings have eased off a bit in price. No. 1 white shirt cuttings are reported available to mills at 7.50 cents or thereabouts per pound at dealers' shipping points, fancy shirt cuttings at 4.25 cents, new light silesias at 6 cents, blue overall cuttings at 6 cents, No. 1 washables at 4 cents, and unbleached muslins at 8 cents. In all likelihood, buyers are succeeding in effecting some purchases at slightly under these prices.

Old thirds and blues are in fair demand and are reported bringing about 1.75 cents a pound f.o.b. shipping points for repacked quality, while old white cottons are moving in small parcels into regular consuming channels at unchanged to a little lower prices. Foreign rags of practically every grade are in very slow call. Papermakers seem to be filling their wants without difficulty through purchases of domestic rags, and are giving scant attention to imported material. Moreover, market values have declined to levels where European dealers are scarcely inclined to make shipments to the United States, and offerings from the other side of the Atlantic are anything but plentiful.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	7.50– 7.75
White shirt cuttings, No. 2	5.00– 5.25
Fancy shirt cuttings	4.00– 4.25
Washables, No. 1	3.75– 4.00
Unbleached muslins	7.75– 8.00
White lawns	6.50– 6.75
Overall cuttings, blue	5.75– 6.00
Black silesias	4.00– 4.25
Canton flannels, bleached	7.00– 7.25
Canton flannels, unbleached	5.75– 6.00
Shoe cuttings, bleached	5.75– 6.00
Shoe cuttings, unbleached	4.50– 4.75
Light silesias	5.75– 6.00
O. D. khaki cuttings	5.25– 5.50
Mixed khaki cuttings	4.50– 4.75
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	2.75– 3.00
Linens, No. 1 white, foreign	11.00–12.00
Light prints, foreign	3.00– 3.25
Old Stock—	
Whites, No. 1, repacked	4.50– 5.50
Whites, No. 2, repacked	2.25– 2.75
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.75– 2.00
Thirds and blues, rough	1.00– 1.25
Thirds and blues, repacked	1.50– 1.75
Lace curtains	4.00– 4.25
Black stockings	3.50– 3.75
Cotton canvas, No. 1	3.75– 4.00
White cotton batting	1.50– 1.75
Roofing, No. 1 (cloth strippings)	.90– 1.00
Roofing, No. 2	.60– .70
Linsey garments, foreign	.90– 1.00
Dark colored cottons, foreign	.75– .80
Blue linens, foreign	2.75– 3.00
Gray linens, foreign	3.00– 3.50
White linens, foreign	5.50– 6.00
Light prints, extra foreign	1.75– 2.00

Rope and Bagging

A comparatively good demand is reported for gunny bagging and also for bagging for roofing paper mill consumption, but otherwise the market is in a quiet position and characterized by little or no change of importance. No. 1 gunny is bringing in the neighborhood of 1.70 cents a pound f.o.b. shipping points in sales to mills, and roofing manufacturers have paid 75 cents per hundred pounds for roofing bagging from abroad ex dock New York. No. 1 scrap bagging is being bought only in a routine way on a price basis of about 1.50 cents to slightly lower per pound at dealers' shipping points.

Paper-mill demand for old rope is dull indeed. Most consumers appear to have ample stocks of old rope on hand and are not disposed to augment their supplies, and prices are gradually slipping to cheaper levels. About 3 cents a pound f.o.b. shipping points is named on domestic No. 1 old manila rope, and 2.75 cents or a bit lower ex dock American Atlantic ports on imported old rope.

F.o.b. shipping point and ex dock New York quotations follow:

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PENSACOLA, FLA.
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CAUSTIC SODA

Liquid Chlorine

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In tank cars and multiple unit cars.

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Alkalies and Chemical Products Manufactured by The Solvay Process Company
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Boston Syracuse Chicago Indianapolis Cleveland
Cincinnati Pittsburgh Detroit Philadelphia
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*Trade Mark Reg. U. S. Pat. Off.

	New York and Chicago
Gunny, No. 1 domestic	1.65– 1.70
Gunny, No. 1 foreign	1.60– 1.65
Scrap bagging, No. 1	1.40– 1.50
Roofing bagging	.60– .75
Wool tares, heavy	1.65– 1.75
Wool tares, light	1.55– 1.65
Manila rope, No. 1 foreign	2.60– 2.75
Manila rope, No. 1 domestic	2.85– 3.00
Sisal strings	1.75– 2.00
Mixed strings	.75– .90

Old Paper

A little better demand for some grades of old paper has sprung up since the beginning of the year, but it cannot be said that the market has registered any pronounced improvement, and is still altogether in favor of those on the buying side. A surplus of waste paper exists, from all indications; either this or an under-consumption, and the logical result is that prices have sunk to levels lower than the market has known in a long time, and from which much difficulty seemingly is being experienced by members of the trade in their efforts to raise values. The situation in the low grades is such that only buyers seeking supplies and willing to test out the market are in a position to determine exactly how cheap purchases can be effected. It is known that mixed paper of No. 1 quality has been bought in the East at $2 a ton f.o.b. shipping points, and some other grades have sold at relatively as low prices in certain instances.

On the other hand, the high qualities such as white shavings are holding moderately steady in price while favored with fair demand. Such material is being produced in subnormal volume, and dealers are somewhat cautious in entering sales commitments. Routine demand exists for kraft, manila and ledger grades, while occasional sales of some consequence are reported in book stock.

The following quotations f.o.b. shipping points are largely nominal:

	New York and Chicago
Hard white shavings, No. 1	2.50– 3.00
Hard white shavings, No. 2	2.25– 2.50
Soft white shavings	2.25– 2.75
Colored shavings	.50– .60
Heavy book, No. 1	.70– .80
Crumpled book, No. 1	.55– .60
Ledger stock	.60– 1.00
Kraft No. 1	1.00– 1.15
New kraft cuttings	1.50– 1.75
White blank news	1.60– 1.75
Manilas, No. 1	.40– .60
Manilas, container	.20– .30
Folded news	.30– .50
Sulphite mill wrappings	.50– .60
Old corrugated boxes	.40– .45
New corrugated box cuttings	.50– .55
Mixed paper, No. 1	.10– .30
Common paper	(Nominal)

Pulpwood

Everything considered, there is a fair demand for pulpwood, according to reports, and supplies are moving into consuming channels in a steady manner for this season of the year. Prices are holding their own and are marked by a steady tone.

Exports of pulpwood from Canada during the calendar year 1930, all of which came to the United States, totaled 1,330,466 cords, valued at $13,611,617, showing an increase over the 1,294,995 cords of a value of $13,314,738 exported in 1929.

Mechanical Pulp

There is a steadier undertone in market prices of mechanical wood pulp than perhaps in any other class of papermaking raw material. One reason for this, it is asserted, is that a firm supply condition exists in groundwood. Production has decreased, due to freezing weather in some grinding regions handicapped grinding mills, and the market from a general

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Taylor Pipe is made of Rust Resisting Copper Alloy Steel, and is furnished in lengths cut to exact size galvanized or asphalt coated depending on the conditions of service.

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GLENS FALLS, NEW YORK

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Pacific Coast Representative, K. B. Hall, Portland, Oregon

The Advantages of WOOD TANKS

They are not corrodible and are ideal for acid storage, alum solution, tanks, etc. They are used where steel cannot be used and usually are preferred to steel where either will do. Wood tanks require little upkeep, are painted only for appearance and for most purposes are the most economical in the long run.

The illustration shown below is a Battery of Acid Tanks at the St. Regis Co. Mill at Deferiet, N. Y.

The HAUSER-STANDER TANK CO.
Cincinnati, Ohio

DAYTON BEATERS
HIGH SPEED
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Eastern Representative MANSFIELD, BOLTON & KENT, N. Y. C.
Western Representative F. H. GODFREY, Seattle, Wash.

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SYRACUSE ROLLWAY CYLINDRICAL ROLLER BEARINGS NEW YORK

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standpoint seems fairly well sold up. Domestic manufacturers are reported asking and getting around $28 a ton f.o.b. pulp mills for prime groundwood freshly ground and for prompt shipment, while Canadian grinders are receiving from $25 a ton upwards at pulp plants. Sales of Canadian groundwood on a delivered paper mill price basis in New York State of $34 to $35 a ton have been recorded. Imported groundwood also is steady quotably, which helps to sustain market prices on the domestic and Canadian product.

Chemical Pulp

There is not much fresh trade activity developing in chemical wood pulp, but reports tell of a fairly steady movement of supplies from producing mills to consuming centers against contracts and back commitments. Indications are that most consumers are managing to get along with supplies coming in without having to resort to additional purchases, and the situation in imported pulp is a factor curtailing to some extent activity in the domestic product. Quoted prices have recorded little further change. It would appear as if the market has reached levels where greater resistance is arising to any more decline. Domestic bleached sulphite of Pacific Coast origin is reported available on a price basis of 2.70 cents a pound ex dock Atlantic seaboard, and it is said that Middle Western paper mills are purchasing such pulp for overland rail shipment at this same price delivered. Other qualities of bleached sulphite range in value up to as high as 4.50 and 4.75 cents a pound at pulp mills. Unbleached sulphite of domestic manufacture is quoted 2.25 cents to slightly higher for newsprint grades, and around 2.50 cents for book quality f.o.b. pulp mills. No. 1 Eastern kraft pulp ranges in price from 2.50 to 2.75 cents at pulp plants, whereas Southern kraft is reported offered at 1.90 cents and perhaps at less.

Quotations f.o.b. pulp mills are as follows:

Bleached sulphite	2.70– 4.75
Easy bleaching sulphite	2.50– 2.75
Unbleached sulphite, No. 1 strong (news grade)	2.25– 2.50
Unbleached sulphite, No. 1 book	2.40– 2.65
Soda pulp bleached (delivered)	3.00– 3.25
Mitscherlich, unbleached	2.75– 3.00
Kraft, No. 1	1.90– 2.75
Screenings, refined	(Nominal)

Chemicals

Prices of papermaking chemicals appear well stabilized in most instances, and show little or no changes of consequence. Demand is along routine lines principally, with most consumers getting by with contract commitments without having to engage in additional buying. Casein prices continue on a range of 9.50 to 12 cents a pound, duty paid on the imported product. Soda ash holds to a quotable basis of about 1.20 cents a pound for the 58 per cent light packed in bags, with some buyers obtaining a slight concession from this price, while caustic soda is lower at 2.50 to 2.55 cents a pound for the solid product f.o.b. works.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powdered	3.75 – 4.00
Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00
Casein (duty paid)	9.50 –12.00
Caustic soda, solid, spot delivery	2.50 – 2.55
China clay, domestic washed	8.00 –13.00
China clay, foreign	15.00 –21.00
Rosin, Grade E	5.00 – 5.35
Satin white	2.00 – 2.25
Soda ash, 58 per cent light (bags)	1.15½– 1.25
Starch, papermakers', in bags	3.27 –.....
Talc (ton)	16.00 –18.00

New experimental laboratories, costing more than $500,000, which will house the research facilities of the Hercules Powder Company, Wilmington, Del., are nearing completion. The main laboratory building and a number of smaller units have been finished and are awaiting installation of equipment.

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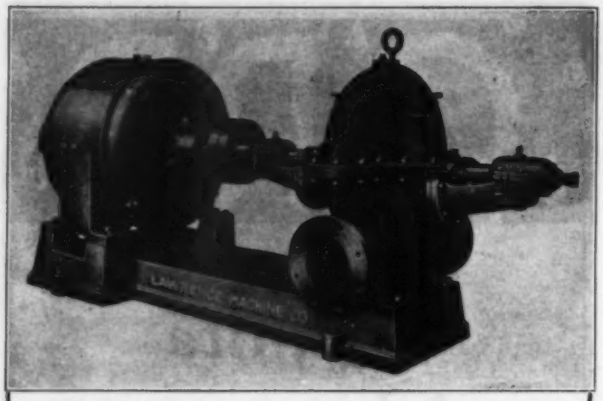

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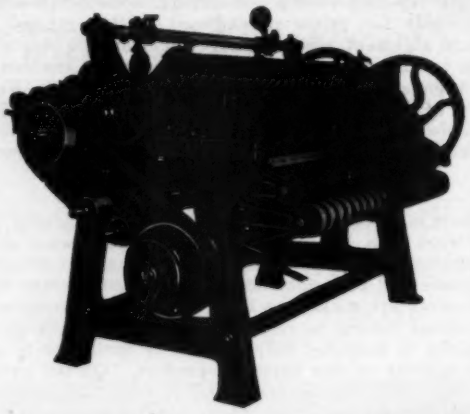

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White sulphite	8–30
Colored rag	15–40
Colored sulphite	8–30
Ledger—	
White rag	16–40
White sulphite	10–30
Colored sulphite	10–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	7–30
Colored sulphite	7–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.75– 8.00
Machine finished	5.50– 8.00
English finish	5.50– 8.00
Coated and enameled	7.50–12.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York	62.00–
Rolls, transient, per ton, delivered New York	62.00–
Sheets, per ton, delivered New York	67.00–
Sideruns, per ton, delivered New York	47.00–52.00
Cover Stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.70– .80
No. 2 white, 40x36	.65– .75
No. 1 Manila, 24x36	.65– .75
Kraft	.85– .90
Wrapping—	
No. 1 kraft	5.00– 5.50
No. 2 kraft	3.25– 4.00
Southern kraft	3.25– 3.75

Boards—	New York and Chicago
Solid news	35.00–40.00
Straw	45.00–50.00
Plain chip	30.00–32.50
White coated chip	47.50–50.00
Manila coated chip	42.50–45.00
Binders' board	65.00–70.00

Paper Salesmen at Museum of Science and Industry

The New York division of the Salesmen's Association of the Paper Industry held a luncheon meeting on Tuesday, January 27, at the Museum of Science and Industry, 220 East 42nd street, which is the Daily News Building and headquarters of the International Paper Company. There was a fairly good attendance, it having been announced that the problems of color in paper work would be discussed by one of the officials of the museum. A buffet luncheon was served and following this and the reception of reports on the condition of trade by members, a tour of the exhibits was made. Attention was concentrated on the progress made in the use of color, the range and diversity of color uses being shown in representative exhibits which followed a logical grouping, as the nature of color; the production of color; color as the eye sees it; color measurement; color materials, and color application. What was said to be one of the world's largest spectrographs was pointed out and described and other apparatus on exhibition included an ultra-microscope, a furnace for the manufacture of synthetic gems and a chemical rainbow. There was an exhibit by Arthur S. Allen, the color expert, giving details of the Munsell system. The opportunity was given to members to test themselves for color blindness and the majority of those present took the test. It was pointed out that color blindness affects about four per cent of males and .4 of one per cent of females. In a circular of facts about color, the statement was made that colors have three dimensions: hue, value and chroma. Hue distinguishes one color from another; value means the light and dark variations of the same color, such as maroon, red and pink; while chroma indicates the strength or vividness of a color.

Dr. I. H. Godlove led the party through the museum. In speaking of colorimeters, he said that by their use it was now possible to analyze any given colored article and provide a way for exact reproduction of that color. In this way, future generations would be able to reproduce any color pattern we might today achieve. He said that other color measuring devices had been developed for measuring the "average" color of vari-colored objects. By still other machines the color differences of objects which appear the same to the eye could be detected.

New Moistureproof Gummed Tape

The Robert Gair Company has just announced corrugated containers with "Gairtite," a new moistureproof gummed tape which sticks fast and insures a strong tight box under all conditions of humidity.

This tape utilizes the well-known reputation of odorless asphalt for moisture resistance by burying an unbroken film of this material between cambric and gummed kraft paper. After nearly a year spent in development the tape has already been used on the vertical "manufacturer's joint" of thousands of corrugated boxes. These cases have been exposed to every conceivable condition of atmospheric moisture with no failures from softening of the glue—a condition so often encountered when ordinary gummed tape becomes damp.

This development was forced by the recent rapid growth of the frozen food industry and the increased use of refrigeration with its damp atmospheres. Corrugated board, because of its high insulating value, is necessary for such packages. The adoption of moistureproof tape will not only accelerate the taking of full advantage of this economical insulation but will also remove a vexing problem which has faced exporters to the tropics where damp sea air and condensation have often caused boxes to open up at the taped joint.

G. A. Vollmer, formerly vice-president of the Kieckheffer Container Corporation, and C. H. Andrews, formerly of the Robertson Paper Company, have joined the sales staff of the Robert Gair Company, 420 Lexington avenue, New York City, where they will assist in the expansion of container and folding box sales.

Arthur H. Moeller, of the Whittaker Paper Company, New York, has been honored by election to the presidency of the Graphic Arts Square Club of New York, and was installed in the office at a meeting held in the Hotel McAlpin.

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Part I contains the first twelve lessons and two separate articles—A Problem in Head Box Control and The Degree of Hydration.

Part II contains fourteen lessons and one separate article—Safety Practice in Machine Room. Price 50¢ each.

Practical Helps for the Mill Man

A 48-page pamphlet made up of practical helps, many of which have meant considerable savings in paper and pulp mills. Of tremendous value to the practical man. Price 50c.

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333 N. Michigan Ave. CHICAGO, ILL.

EXPORTS

Exportations of paper and paper products from the United States during the month of November last, according to official statistics compiled and issued by the U. S. Department of Commerce, showed a decline as compared with preceding month, and also a decrease contrasted with the corresponding month in 1929. Total exports during November reached a value of $2,066,217, against $2,362,364 in October last year, and $2,873,729 in November, 1929. The November exports brought the total for the first 11 months of last year up to a value of $28,323,255, registering a loss as compared with shipments of a value of $33,948,261 in the similar period of the preceding year.

Exports of newsprint from the United States in November amounted to 1,266,509 pounds, valued at $44,857, contrasted with 1,645,876 pounds of a declared value of $61,787 in the preceding month, and 1,561,611 pounds of a value of $60,809 in November, 1929. The principal exports of print paper in November were to the Philippine Islands, South America and Cuba, in the order given. Wrapping paper exports in November aggregated 3,997,664 pounds, valued at $231,869, compared with 4,947,950 pounds of a value of $264,962 in the same month of 1929, while writing paper shipments last November reached 1,289,618 pounds of a value of $126,540, against 1,785,940 pounds of a value of $186,705 in the same month of the preceding year.

Exports of boxboard, of paperboard and strawboard in November amounted to a value of $71,051, against $53,960 in the previous November, while shipments of other paperboard were valued at $99,476, contrasted with $171,769 in the same month of 1929. Exports of insulating lath or board increased from a value of $121,493 in November, 1929, to $129,876 last November.

IMPORTS

Wood Pulp

It is no secret that a large majority of paper and board mills are amply supplied with wood pulp. A good many paper manufacturers bought pulp in generous volume last year, and since their requirements have decreased owing to a shrinking of business in their own products, considerable of the supply of foreign pulp which has been received in the last several months against contracts and old orders now constitutes a surplus on the market in the United States. Obviously under these circumstances the demand for imported pulp is rather slow; there is a fair interest among consumers in supplies for the second half of 1931 but limited actual purchasing, and buyers are entering the market currently only when in urgent need of small lots of pulp for filling-in purposes or to satisfy sudden and unexpected wants.

Nevertheless the pulp market exhibits a firmer undertone in some of its branches. There is decided steadiness in quotations from primary sources abroad on nearly all the major classes of chemcial pulp, and it is very evident that many producers in Scandinavia and elsewhere in Europe are not so eager to effect sales at ruling market prices as they were and that they are exerting much more resistance to any further fall in pulp values. In the instance of strong unbleached sulphite, prices have steadied to a level of 2.10 cents upwards a pound ex dock American Atlantic ports, and it is stated that mills on the other side of the big pond are refusing to accept orders at lower figures. Nearly all of the sulphite producers throughout Europe have banded together in an agreement to cut their output 15 per cent this year, and it is apparently felt that this reduction in production will in time lead to a much stronger technical market position and a likely rise in prices. Therefore, most European producers are resting on their oars, so to speak, while awaiting market developments and having disposed of a sufficient percentage of their 1931 output to enable them to hold aloof from additional sales unless obtaining the prices asked.

Imported bleached sulphite is in very limited demand. It is asserted that domestic bleached sulphite, of Pacific Coast origin, has replaced considerable of the pulp of this kind formerly imported from Europe, and that the consuming outlet for sales of the foreign product in this country has narrowed substantially. Prime imported bleached sulphite is available at 2.80 cents a pound ex dock New York or other Atlantic ports, though some qualities are quoted up as high as 4 to 4.25 cents per pound. Easy bleaching sulphite of prime grade is on a price range of 2.30 to 2.50 cents ex dock New York, and ordinary Mitscherlich unbleached is available at 2.10 to 2.15 cents. Prime standard Swedish kraft pulp is quoted in most quarters at 1.65 to 1.75 cents a pound on the dock at New York, but it is said concessions from these prices are being allowed by some sellers. Groundwood of foreign origin is quoted at $30 to $31 a ton for dry and $29 to $30 for moist ex dock New York.

Imports of chemical wood pulp into the United States during November amounted to 135,630 long tons, of a declared value of $6,512,193, compared with 98,043 tons of a value of $5,249,908 imported in the preceding month, and 128,730 tons of a value of $7,180,981 in November, 1929, according to official U. S. Department of Commerce statistics. The November imports brought the total for the first 11 months of last year up to 1,240,122 long tons, giving a monthly average of 112,738 tons, contrasted with a total of 1,322,137 tons or a monthly average of 120,194 tons in the corresponding time of 1929. Groundwood imports in November were 19,443 long tons, valued at $510,675, compared with 27,951 tons of a value of $724,525 in the preceding month, and making a total for 11 months of 1930 of 243,064 tons, against 211,853 tons in the same period of 1929.

Current market quotations ex dock New York, and receipts at the port of New York during January, 1931, these data being taken from vessels reaching that port last month, follow:

Bleached sulphite, No. 1	2.80– 4.25
Unbleached sulphite, strong No. 1	2.10– 2.30
Unbleached sulphite, No. 2	1.90– 2.10
Easy bleaching sulphite	2.30– 2.50
Mitscherlich, unbleached, genuine	2.60– 2.80
Mitscherlich, unbleached, ordinary	2.10– 2.25
Kraft, standard Swedish	1.50– 1.75
Groundwood, per ton (dry)	30.00–31.00

Castle & Overton, 1,375 bls. from Hamburg; National City Bank, 304 bls. from Hamburg; Harriman Bros. & Co., 832 bls. from Hamburg; A. P. W. Paper Co., 7,525 bls. groundwood from Sheet Harbor, N. S.; Russell McCandless, 600 bls. from Gothenburg; E. M. Sergeant Co., 598 bls. from Gothenburg; Johaneson, Wales & Sparre, 4,250 bls. from Gothenburg, 5,125 bls. Sundsvall, 4,500 Svartvik, 200 Oslo and 5,750 Soraker; Lagerloef Trading Co., 254 bls. from Helsingfors, 3,036 Rauma, 645 Viborg, 137 Kotka and 810 Tolkis; Pagel, Horton & Co., 2,400 bls. from Hornefors and 2,250 Gefle; Stora Kopparberg Corp., 5,500 bls. from Skutskar; Guaranty Trust Co., 3,000 bls. from Sundsvall and 1,000 Wifstavarf; Central Hanover Bank & Trust Co. 5,875 bls. from Sundsvall and 3,000 Wifstavarf; Scandinavian Pulp Agency, 250 bls. from Sundsvall and 500 Wifstavarf; Atterbury Bros., 500 bls. from Oslo; Bulkley, Dunton & Co., 7,470 bls. from Hernosand, 9,925 Stugsund, 1,500 Soraker and 2,750 Gefle; J. Anderson & Co. 1,500 bls. from Hernosand; Price & Pierce, 750 bls. from Stugsund, 125 Gothenburg and 1,800 Wallvik; M. Gottesman & Co., 2,420 bls. from Sibenik and 600 Gothenburg; Parsons & Whittemore, 360 bls. from Gothenburg; Brown Bros. & Co., 750

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Biggs Riveted Rotary Digesters

Biggs Standard Cylinder Rotary Bleaching Boilers

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Stationary Vertical Digesters, Welded or Riveted
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Fourdrinier Paper Machines—Conventional Type and Removable Fourdriniers—Cylinder Paper and Board Machines—Beating Engines (Horne patent and Hollander) Standard and High Speed Types—Washing Engines—Jordan Engines, Pulley and Motor driven, equipped with anti-friction bearings, if desired—Single and Duplex Paper and Board Cutters. Pope Conservators, Brushing Engines and Screens.

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COMPANY INC.

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PAPER MACHINERY

CALENDERS: Board
CALENDERS: Paper
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See PAPER AND PULP MILL CATALOG or LOCKWOOD'S DIRECTORY — 1931

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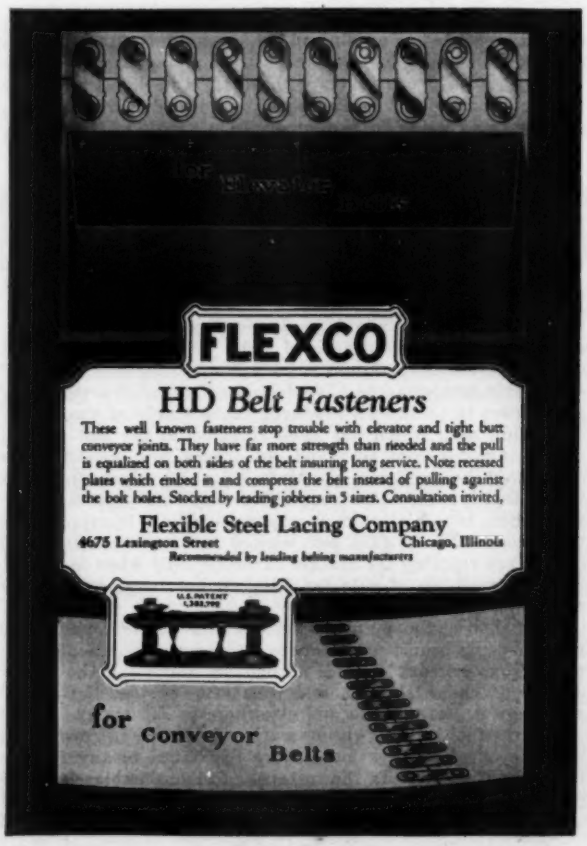
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These well known fasteners stop trouble with elevator and tight butt conveyor joints. They have far more strength than needed and the pull is equalized on both sides of the belt insuring long service. Note recessed plates which embed in and compress the belt instead of pulling against the bolt holes. Stocked by leading jobbers in 5 sizes. Consultation invited.
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bls. from Norrsundet; E. J. Keller Co., 336 bls. from Hamburg; Order, 1,050 bls. from Hamburg, 540 Tolkis and 127 Gothenburg.

Paper Stock

Imports of papermaking rags into the United States in November last amounted to 13,884,416 pounds, valued at $271,602, compared with 14,821,074 pounds of a value of $235,205 imported in the preceding month, and making a total of 272,066,246 pounds during the first 11 months of last year, contrasted with 405,252,432 pounds in the corresponding period in 1929. Imports of other paper stock in the first 11 months of last year totaled 211,925,029 pounds, against 249,286,856 pounds in the similar time of the preceding year.

Imports of papermaking material in January were small, judging from receipts through the port of New York. Arrivals of all kinds of paper stock excepting wood pulp at that port last month, these data being taken from manifests of steamers reaching New York and therefore unofficial, were as follows:

Old Rope—William Steck & Co., 133 coils; Brown Bros. & Co., 32 bls.; International Trust Co., 135 rolls and 97 bls.; International Purchasing Co., 297 coils; R. M. Gray, Inc., 13 bls.; United Fruit Co., 2 bls.; Irving Trust Co., 49 coils; Chemical Bank & Trust Co., 192 bls.; Ellerman's Wilson Line, 90 coils; N. E. Berzen, 11 coils; Furness, Withy & Co., 87 bls.; E. J. Keller Co., 36 bls.; Order, 294 coils, 102 reels and 57 bls.

Old Bagging—Castle & Overton, 77 bls.; Banca Commerciale Italiana Trust Co., 426 bls.; Darmstadt, Scott & Courtney, 103 bls.; E. J. Keller Co., 137 bls.; T. D. Downing & Co., 76 bls.; Seidel Hersog, 6 bls.; R. F. Downing & Co., 64 bls.; Arkus, Inc., 44 bls.; International Trust Co., 159 bls.; International Acceptance Bank, 51 bls.; George W. Millar & Co., 115 bls.; Bank of New York & Trust Co., 325 bls.; Order, 37 bls.

Rags—Darmstadt, Scott & Courtney, 75 bls.; E. J. Keller Co., 416 bls.; Victor Galaup, Inc., 116 bls.; J. Reiss & Co., 16 bls.; P. Garvan, Inc., 81 bls.; A. Hurst & Co., 4 bls.; E. Butterworth & Co., 210 bls.; J. Cohen & Sons, 37 bls.; Castle & Overton, 18 bls.; S. Birkenstein & Sons, 26 bls.; International Trust Co., 279 bls.; New York Trust Co., 53 bls.; National City Bank, 50 bls.; Chase National Bank, 36 bls.; Chemical Bank & Trust Co., 54 bls.; A. W. Fenton, Inc., 2 bls.; Amderutra, Inc., 349 bls.; Baltic Shipping Co., 4 bls.; Rohner Gehrig & Co., 30 bls.; Amtorg Trading Co., 76 bls.; Brown Bros. & Co., 71 bls.; Order, 85 bls.

Miscellaneous Paper Stock—S. Kirkenstein & Sons, 278 bls.; E. J. Keller Co., 110 bls.; Chemical Bank & Trust Co., 98 bls.; Guaranty Trust Co., 109 bls.; Baring Bros. & Co., 38 bls.; Milton Snedeker Corp., 108 bls.; Castle & Overton, 88 bls.; Irving Trust Co., 68 bls.; Order, 79 bls.

Paper

November importations of paper into the United States registered a decline in value as compared with the preceding month and also contrasted with the same month in 1929, according to official statistics compiled by the U. S. Department of Commerce in Washington. Total paper imports in November reached a value of $12,316,594, against $13,259,907 in October last year, and $14,580,269 in November, 1929. The November imports brought the 11-month total for 1930 up to $135,294,879, compared with importations valued at $148,869,982 in the corresponding period of 1929.

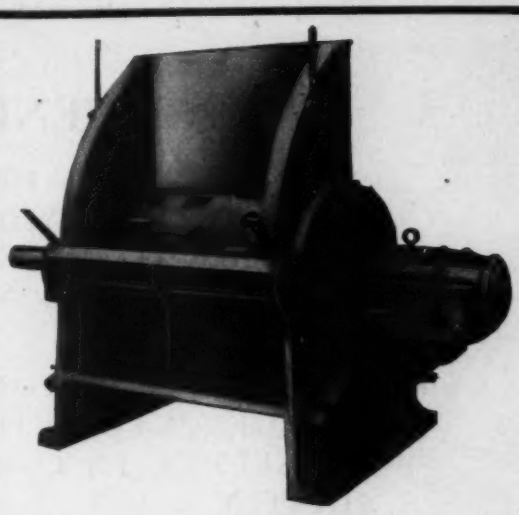
Imports last month were on a comparatively small scale, taking the shipments through the port of New York as a criterion. Receipts of paper of all kinds at New York in January, 1931, these data being taken from manifests of steamers reaching that port during the month and therefore unofficial, were as follows:

Printing—Perkins-Goodwin Co., 1,838 reels from Hamburg; J. Henschel & Co., 13 cs. from Hamburg; Phoenix Shipping Co., 208 bls. from Bremen; Keuffel & Esser Co., 62 rolls from Hamburg; Bank of Montreal, 3,765 rolls from Corner Brook, N. F.; Walker Goulard Plehn Co., 24 bls. from Gothenburg and 10 cs. Rotterdam; J. E. Gefaell, 241 reels from Gothenburg; E. Dietzgen & Co., 76 cs. from Rotterdam and 141 rolls Copenhagen; Parsons & Whittemore, 615 reels from Hamburg; Martin & Bechtold, 22 cs. from Hamburg; W. H. Bell, 7,435 rolls from Hamburg; Guaranty Trust Co., 55 bls. from Hamburg; Steiner Paper Corp., 47 cs. from Antwerp; P. C. Zuhike, 5 cs. from Rotterdam; C. Steiner, 7 cs. from Marseilles and 12 cs. Antwerp; Lunham & Reeve, 609 reels from Kotka; Stora Kopparberg Corp., 110 reels from Gothenburg; Order, 669 rolls and 51 bls. from Hamburg, 22 cs. London, 480 reels Kotka, 1,937 reels and 15 cs. Bremen, and 543 rolls and 33 bls. Oslo.

Wrapping—Borregaard Co., 544 reels and 169 bls. from Gothenburg; F. L. Kraemer & Co., 190 bls. from Gothenburg; C. Steiner, 26 bls. from Hamburg; Sylvania Industrial Corp., 20 cs. from Antwerp; E. Dietzgen & Co., 35 cs. from Rotterdam and 4 cs. Antwerp; Westchester Paper Co., 27 bls. from Gothenburg; Robert Wilson Paper Corp., 28 reels from Glasgow.

Cigarette—American Tobacco Co., 1,659 cs. from Bordeaux; DeMauduit Paper Corp., 1,280 cs. from Havre; Champagne Paper Corp., 812 cs. from Havre; Standard Products Corp., 184 cs. from Havre; Brown Williamson Co., 7 cs. from Southampton and 4 cs. Havre; M. Spiegel & Sons, 9 cs. from Bordeaux and 31 cs. Glasgow; P. J. Schweitzer, Inc., 212 cs. Marseilles and 2 cs. Havre.

Writing—H. Reeve Angel & Co., 1 cs. from London; Guibont Freres & Co., 6 cs. from Southampton; Distinctive Writing Paper Co., 24



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Builders of machinery since 1854

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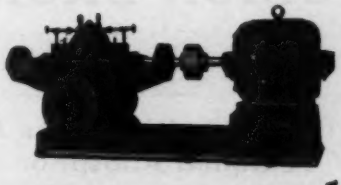
"VORTEX" CENTRIFUGAL **PUMPS**



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From suction end to discharge you will find LAWRENCE "VORTEX" PUMPS built to stand up under the severe conditions of the paper industry. Compare it, part for part, with pumps you have used in the past. Unless you are already a LAWRENCE "VORTEX" user, you will be strongly impressed by the fact that each part is heavier, more rugged, and is designed and built equal to the job in your plant. A pump for every purpose, for pumping any liquid—pulp stock, white water, acids, etc.

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WE REALIZE YOUR NEEDS UNDER SUCH EMERGENCY CONDITIONS AND HAVE PREPARED OURSELVES TO CO-OPERATE WITH YOU INSTANTLY.

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SCREEN PLATES FOR FLAT SCREENS
6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

Old Plates Reclosed and Re-cut to Accurate Gauge
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

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cs. from Havre; Norton, Lilly & Co., 26 bls from Hull; Order, 13 cs. from Bremen.

Filter—E Fougera & Co., 86 cs. from Bordeaux; H. Reeve Angel & Co., 44 cs. from London and 64 cs. Southampton; J. Manheimer, 164 bls. from Southampton; Baltic Shipping Co., 10 cs. from Hamburg; C. Sleicher & Scholl Co., 27 cs. from Hamburg; A. Giese & Son, 50 bls. from Havre, 10 bls. Hamburg and 12 bls. Southampton; Panama-Pacific Line, 6 cs. from Southampton; C. G. Euler, 25 bls. from Bordeaux; Consumers Products Co., 10 cs. from Bordeaux.

Tissue—W. J. Byrns & Co., 7 cs. from Southampton; F. B. Vandegrift & Co., 10 cs. from Liverpool.

Hanging—F. J. Emmerich & Co., 85 bls. from Hamburg, 7 cs. Havre and 21 bls. Liverpool; C. A. Haynes Co., 56 bls. from London; A. C. Dodman, Jr., Inc., 2 bls. from Havre and 2 bls. Rotterdam; American-Hawaiian S. S. Co., 4 cs. from London; Irving Trust Co., 47 cs. from Hamburg; J. W. Hampton, Jr., & Co., 2 cs. from London; F. A. Binder, 53 bls. from Hamburg; Globe Shipping Co., 11 bls from Hamburg; R. F. Downing & Co., 14 cs. from Yokohama and 9 cs. Southampton; Bush Service Corp., 3 bls. from London; Guaranty Trust Co., 29 cs. from Hamburg; J. E. Bernard & Co., 18 bls. from Hamburg, 72 bls. Antwerp and 19 bls. Southampton; Order, 51 bls. from Hamburg, 11 cs. Rotterdam and 2 cs. London.

Drawing—Keuffel & Esser Co., 93 rolls and 82 cs. from Hamburg and 7 cs. Southampton; H. Reeve Angel & Co., 8 cs. from London and 3 cs. Southampton.

Photo—Gevaert Co. of America, 90 cs. from Antwerp; J. H. Schroeder Banking Corp., 4 cs. from Bremen; J. J. Gavin & Co., 4 cs. from Southampton.

Board—H. Fuchs & Co., 107 bls. from Gothenburg; Order, 26 bls. from Hamburg.

Miscellaneous—Marine Midland Trust Co., 27 bls. from Hamburg; F. Murray Hill, Inc., 7 cs. from Bremen; S. Gilbert, 39 cs. from Bremen; Hensel, Bruckmann & Lorbacher, 42 cs. from Bremen and 2 cs. Hamburg; Tamm & Co., 5 cs. from Bremen and 1 cs. Hamburg; Vernon Bros. Co., 66 cs. from Glasgow; Japan Paper Co., 2 cs. from Southampton, 45 cs. Yokohama, 23 cs. Havre and 53 cs. Trieste; B. F. Drakenfeld & Co., 30 cs. from Liverpool; D. F. Young, 3 cs. from Liverpool and 26 cs. Bremen; P. H. Petry & Co., 13 pkgs. from Havre; Keller-Dorian Paper Co., 83 cs. from Havre; Bank of America, 11 cs. from Hamburg; Finsilver, Still & Moss, 14 cs. from Havre; Union Selling Co., 2 cs. from Hamburg; C. Steiner, 7 bls. from Hamburg; E. Smith, 33 bls. from Hamburg; Hurley-Johnson Co., 19 bls. from Liverpool; Whitefield Paper Works, 4 cs. from Kobe; Whiting-Patterson Co., 19 cs. from Southampton; Heemsoth, Basse & Co., 4 bls. from Rotterdam; Kaplan Bros., 3 cs. from Bremen; Bernhard Meiners, 15 cs. from Hong Kong; W. A. Foster, 3 cs. from London and 3 cs. Southampton; E. Dalber, 2 cs. from Antwerp; F. L. Kraemer & Co., 6 cs. from Southampton; C. Bruening, 72 cs. from Rotterdam; International Forwarding Co., 2 cs. from Hamburg and 20 cs. Antwerp; American Express Co., 18 cs. from Hamburg, 3 cs. Southampton and 5 cs. Glasgow; Atlantic Forwarding Co., 19 cs. from Hamburg; National Freight Forwarding Co., 3 cs. from Hamburg; Richards Shipping Co., 4 cs. from Havre; Globe Shipping Co., 64 cs. from Bremen, 44 cs. Rotterdam and 109 cs. Hamburg.

Emerson Mfg. Co. Acquires Dillon Machine Co.

The Emerson Manufacturing Company, division of John W. Bolton & Sons, Inc., Lawrence, Mass., announce the purchase of all the property of the Dillon Machine Company of that city, its patterns, machine tools, records and drawings, good will, patents and all other property owned by them.

Founded in 1895 by Peter Dillon, the Dillon Machine Company have been for many years widely known builders of paper mill machinery of improved design. They patented and built various specialties which met with favor in the paper trade and are now being widely used by many of the leading mills in this country and abroad. This includes the well-known Dillon calender doctors and feeds, the Dillon beaters, jordans, pumps and cutters. The Dillon Machine Company are also the builders of the patented Brannan folders.

The Dillon Machine Company, under the supervision of William Morrison, Jr., its former president and treasurer, who was with the Dillon Machine Company for many years, will be operated as a division of the Emerson Manufacturing Company who will continue the business in all respects, thereby making it possible for its customers to obtain new equipment of the Dillon type, as well as replacement parts for all Dillon machinery now in service. It is set forth that by its purchase of the Dillon Machine Company the Emerson Manufacturing Company will add cutters, doctors, folders and pumps to the highly regarded line of papermaking machinery as built by it since 1888.

Herman Diederichs, of Cornell University and William D. Pomeroy, vice-president and general manager of Goulds Pumps, Incorporated, Seneca Falls, N. Y., were co-authors of the paper on "The Occurrence and Elimination of Surges or Oscillating Pressures in Discharge Lines from Reciprocating Pumps," which was awarded the Melville Medal of the American Society of Mechanical Engineers.

Starch—

A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

Our SPECIAL PAPER brand, furnished in either Pearl or Powdered form for beater-sizing, increases strength of sheet and gives improved finish.

Our FOX HEAD brand for top-sizing is more economical than all glue-size.

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Replacement In All Makes
of
ZEOLITE WATER SOFTENERS

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Weight per cu. ft. air-dried	93 lbs.
Effective size	0.36
Uniformity coefficient	1.50
Salt requirement lbs. per cu. ft.	1.5
Exchange value grains $CaCO_3$ per cu. ft.	2800
Time for complete regeneration	10 min.

Exceptional Hardness and Durability.
100% SOFT water to end of run.

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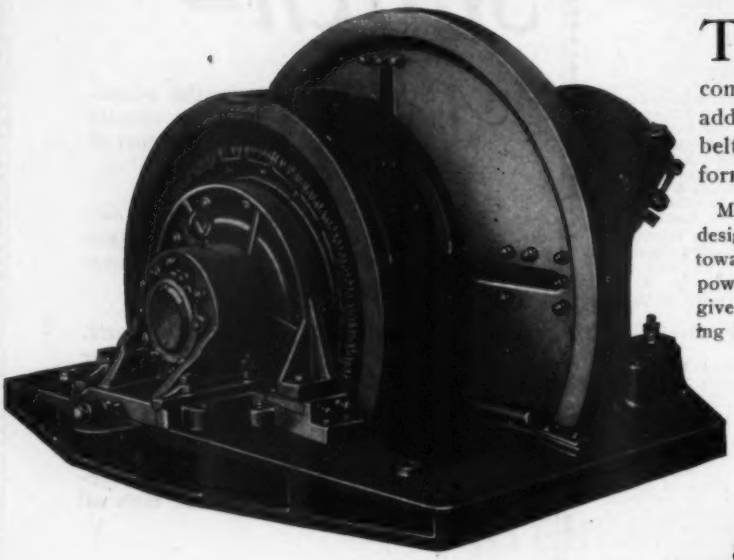
MURRAY Pulpwood Chippers



THE latest development in pulpwood Chippers is this Murray roller bearing, direct-connected-to-synchronous motor model. An addition to our regular line of roller bearing belt-driven Chippers which have been uniformly successful in service for many years.

Murray Chippers are rugged, heavy-duty machines, designed in every detail to meet the modern trend toward cost cutting in mill operation. They save power, produce better chips with less sawdust and give more satisfactory, attention-free service; no bearing leaks or losses; no vibration; long life steel disc; improved bed knife set at correct angle and easy to adjust. We can convert a Murray belted Chipper into a direct connected model at any time by merely purchasing the motor. **WRITE** for all details.

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WAUSAU WISCONSIN

A "Buyers" Market in the Paper Industry

DEMANDS

An increasingly better product. Satisfy that demand by securing, — UNIFORM BRUSHING ACTION at the JORDAN and UNIFORM WEIGHTS at the PAPER MACHINES

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The Trimbey WEIGHT REGULATING STUFF BOX

Made by
TRIMBEY MACHINE WORKS
Glens Falls, N. Y. Also "Made in Canada"

Makers of
Metering Systems
Pulp Screens
Consistency Regulators
Pulp Meters
Float Valves

Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 49439—Cardboard for manufacture of playing cards. Alexandria, Egypt. Purchase desired.

No. 49448—Confetti, serpentines, crepe tissue, and lace paper. Johannesburg, South Africa. Purchase desired.

No. 49412—Toilet paper. Cairo, Egypt. Agency desired.

No. 49438—Tag-making machines. Melbourne, Australia. Purchase desired.

No. 49522—Sulphur (brimstone). Sydney, Australia. Sole agency desired.

No. 49487—Newsprint paper. Tegucigalpa, Honduras. Agency desired.

No. 49518—Bag-manufacturing machines. Brussels, Belgium. Purchase desired.

No. 49523—Roofing, tar-board. Tsingtao, China. Agency desired.

No. 49497—Paper-cutting and paper-folding machinery. Prague, Czechoslovakia. Agency desired.

No. 49496—Wrapping paper. Riobamba, Ecuador. Purchase desired.

No. 49487—Writing paper, flat; papeteries, boxed, and wallboard ceiling panels. Tegucigalpa, Honduras. Agency desired.

No. 49577—Bags, kraft paper, with reinforced square bottoms, holding 5, 10 and more pounds. Hamburg, Germany. Purchase desired.

No. 49607—Containers, milk, greaseproof. Toronto, Canada. Agency desired.

No. 49627—Paper cups for beverages. Berlin, Germany. Agency and purchase desired.

No. 49627—Paper towels. Berlin, Germany. Purchase and agency desired.

No. 49625—Wrapping paper. Alexandria, Egypt. Purchase and agency desired.

No. 49495—Bleaching powder. Ahmedabad, India. Purchase desired.

No. 49609—Caustic soda. Fortaleza, Brazil. Agency desired.

Hayton Pump and Blower Taken Over By Shartle Bros.

Announcement has recently been made of the purchase of the Hayton Pump & Blower Company, Appleton, Wis., by the Shartle Brothers Machine Company, Division of the Black-Clawson Company, Middletown, Ohio.

This move is in line with the policy of the Black-Clawson Co. to manufacture a complete line of paper mill machinery, enabling a customer to purchase practically his entire equipment at one source, and thus center responsibility for the equipment instead of dividing it among a dozen firms. This purchase adds a line of centrifugal pumps, Bond batch refiners, circulating agitators and valves to the existing lines.

The Hayton Pump & Blower Company has an international reputation on centrifugal pumps, Hayton agitators and batch refiners, and have also found a very ready acceptance in a number of mills, the new batch refiner being especially well received. It is said this batch refiner has accomplished some very remarkable results and much interest is being manifested in this development.

The entire plant is being moved to Middletown, and the sales will be handled through the present sales force. Mr. Bond, who will head this new department at Shartle Brothers, is a recognized authority on centrifugal pumps, and is also a man of wide experience in paper mills, so that for the first time it is possible to purchase a highly efficient centrifugal pump, and at the same time, secure the advice of a practical paper-mill man concerning the installation.

We understand it is the purpose of the Shartle organization to offer Mr. Bond's services to the mills, assisting them in determining costs on present methods of pumping and possible ways of making savings along this line.

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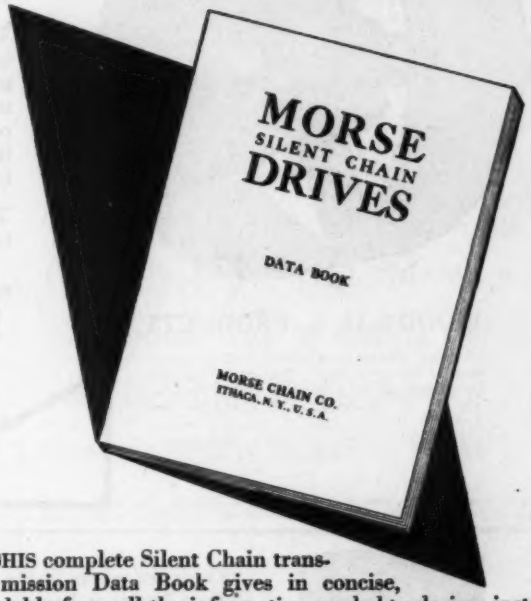

THIS complete Silent Chain transmission Data Book gives in concise, readable form all the information needed to design, install and maintain Morse Silent Chain Drives. It is a ready reference for anyone faced with either standard or special power transmission installations. Sent upon receipt of coupon below.

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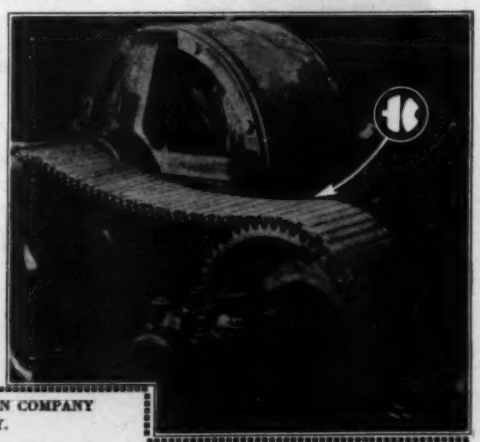

A Morse Drive on Short Centers

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Pap. Ind.—Feb. 31

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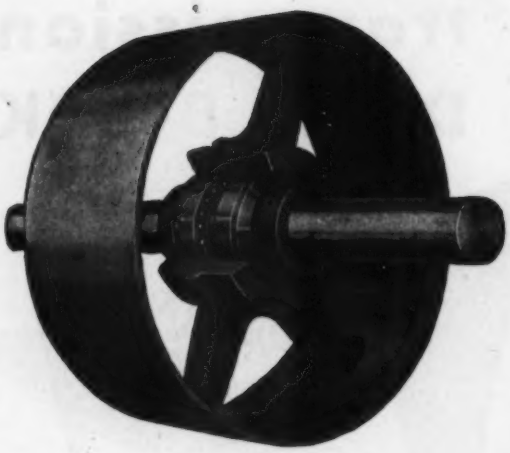

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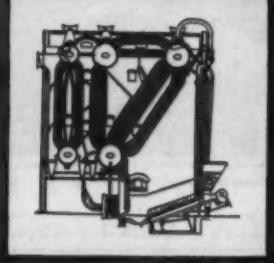

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Exposition of Chemical Industries Will Interest Paper Men

The exhibits at the Exposition of Chemical Industries in New York have always contained much of special interest for pulp and paper men. Four hundred and fifty or more exhibits will fill three spacious floors of Grand Central Palace at Lexington avenue and 46th street, when the 13th Exposition of Chemical Industries opens the week of May 4-9.

These displays will illustrate scores of phases and ramifications of the industries dependent in their operations upon a chemical change in the nature of the material, or which are under chemical control. Among the numerous layouts will be raw materials, chemicals, machinery, boiler room equipment, including refractories, gauges, automatic control and other precision instruments, as well as laboratory equipment, and other equipment and supplies hardly to be classed under any of the foregoing heads.

The exhibits of the various chemicals and machinery will allow the visiting engineer and executive to compare at first hand the various types of materials, equipment and chemical practices with many new features exhibited for the first time.

Among new refinements and economies in control will be a new instrument for indicating or recording, and transmitting to distant points, changes of level in a liquid. This instrument operates on the inductance bridge principle in conjunction with a remote indicating or recording meter. It is applicable to heavy viscous fluids with which the manometer type could not be used. Its action depends upon a float which rises or falls with the level of the fluid, thereby moving an armature within a transmitter coil. A duplicate armature in the receiving instrument causes a meter to indicate or record the changing level. The uses for automatic control, indication and recording are countless.

Pressure of gases and of liquids, voltage and amperage of electric currents, depth of fluids in tanks, towers and reservoirs, the flow of steam, of water or of chemicals, of petroleum products, of air and other gases—these and many other uses for automatic control, indication and recording, will be exhibited at the coming Exposition.

New Apmew Pulp Screen

The American Paper Machinery and Engineering Works, of Glens Falls, N. Y., recently announced a new Apmew pulp screen. The new screen embodies a number of improved features over earlier designs.

In the new design, the rotor has been built stronger. It is pressed under high pressure on the shaft, and is securely fastened to it. The screen plate frames have been made stronger, while the screen plates have been designed to last longer. Detachable fingers have been used to hold the cover. The new design permits the use of solid blades for tailing screening, while provision for expansion has been made in the Timken roller bearing housings.

Tailing control has been simplified and improved. Spokes in the rotor have been eliminated along with the washing water holes of the rotor. The collar at the tailing discharge end of the rotor has also been eliminated. In the operation of the new screen, the tailings are discharged vertically with clogging of the screen minimized practically to elimination.

Such changes in design eliminate the washing water in the rotor, the need of siphon water for sluicing rejections, and the need of a 1½-inch stream of water at the tailing discharge.

Claims made by the manufacturers for the new screen include a reduction in the percentage of tailings, a greater cleaning of papermaking fibers from rejections, the production of cleaner pulp, and a reduction of power.

Complete information about the new Apmew screen will be furnished gladly by the manufacturers upon request.

The Columbian Paper Company has just purchased Taylor Stokers for its new plant at Bristol, Va. These stokers will be equipped with the Taylor Steam Turbine Drive giving a speed range for feeding the coal of 20 to 1, with all intermediate speeds between zero and maximum available.

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A name that has won a world-wide reputation through 75 years devoted to paper-making progress

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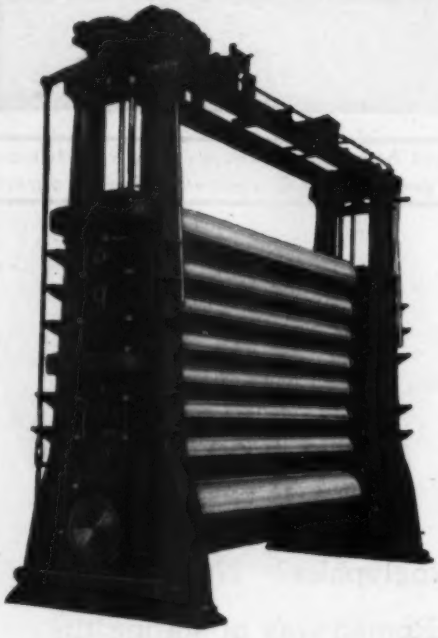

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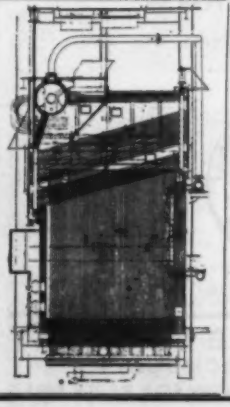

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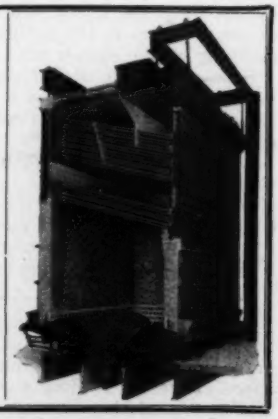
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